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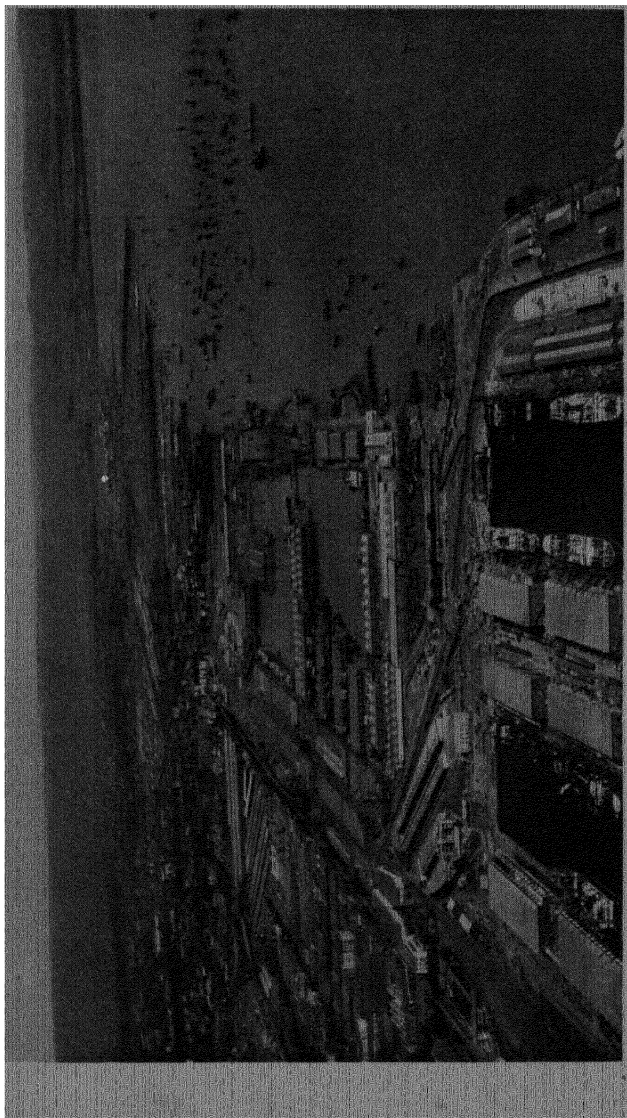


FIG. 1. AERIAL VIEW OF THE ALEXANDRA, VICTORIA, AND PRINCE'S DOCKS, BOMBAY

These docks have a total area of 104½ acres, with 4½ miles of quays, and handle annually over 5,000,000 tons of cargo. The docks are well equipped with railways, warehouses, and cranes. Note the large steamers in the docks and the many small craft in the bay.

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BY

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GEORGE G. HARRAP & CO. LTD.

LONDON

BOMBAY

SYDNEY

First published 1936
by GEORGE G HARRAP & CO LTD.
182 High Holborn, London, W C 1

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PREFACE

THIS book attempts to give a coherent picture of the Asiatic countries and of Australia and New Zealand, describing their present state in the light of their geographical conditions and their history.

The keynotes of Asia are vastness and variety. Asia is easily the largest of the continents; its population exceeds that of all the rest of the world; in scenery, climate, resources, human culture, and economic development it presents a greater range of variety than any other continent. The ancient civilizations of Asia have always excited the interest of European peoples. And now the old "unchanging East" is changing more rapidly, perhaps, than any other part of the world. Among the nations that are essentially European in industrial and social development Japan has already taken a leading place. In a brief span of years amazing changes have been wrought in the Asiatic members of the U.S.S.R. and in Turkey; India is steadily moving on towards a system of self-government; and at no distant date the tragic chaos of China will assuredly give place to ordered progress.

The political affiliations of Australia and New Zealand, on the other hand, are predominantly British, and their physical and climatic features such that they can be treated much more as a unit. The standard of life in these countries is high, and their development has been far more rapid. In spite of these contrasts, however, the future development of Australia and New Zealand is likely to be closely linked with that of Asia.

The maps and photographic illustrations have been carefully selected to illuminate the text. In the maps an

ASIA, AUSTRALIA, AND NEW ZEALAND

effort has been made to include all the place-names mentioned in the text. The constant use of an atlas is presumed, but experience shows that school atlases are sometimes lacking in essential detail.

Mr A. Morley Dell, Headmaster of the County High School, Braintree, Essex, is responsible for the text of the chapters describing Australia and New Zealand.

The material for the Asia section of the text has been derived from many sources, but particular acknowledgment is due to *The Statesman's Year-book*, W. G. Kendrew's *Climates of the Continents*, L. H. Dudley Buxton's *China*, Professor L. W. Lyde's *Continent of Asia*, Dr L. Dudley Stamp's *Asia*, and various articles by Professor P. M. Roxby. Valuable constructive criticism has been freely offered by Professor R. N. Rudmose Brown, Mr Wilfred Smith, of Liverpool University, and Mr S. Vinogradoff, of the Soviet Embassy. Photographs and helpful literature have been supplied by the High Commissioner for India and by the Embassies of Japan, Turkey, China, Afghanistan, Iran, and Siam. The *Official Year-book of the Commonwealth of Australia* and the *New Zealand Official Year-book* contain comprehensive statistics, which have been of great help in the compilation of the Australia and New Zealand chapters. Mr L. S. Suggate has kindly given permission for the use in these chapters of a number of maps (Figs. 108, 110, 113, 117, 137, 138, 144, 145, and 146) taken from his *Australia and New Zealand*, published in this series.

E. V. L.

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ASIA, AUSTRALIA, AND NEW ZEALAND

CHAPTER I

DISCOVERY AND EXPLORATION OF ASIA

ASIA is the largest continent, and contains more than half the human race. The cradle of the human race was probably somewhere in South-western Asia, perhaps not far from the Garden of Eden described in the Book of Genesis, and Asia has given to the world all the great religions. Asia is a continent of great contrasts: it contains some of the most densely peopled regions of the world, yet there are also immense areas with scarcely any population; it includes the greatest belt of highlands and the most extensive lowlands in the world; within its bounds there are civilizations dating back to the dim mists of antiquity, and also primitive peoples who rank very low in the scale of human development.

In very early times, when travel by land or sea was extraordinarily difficult, the peoples of Europe and Asia knew very little of each other. By about 1200 B.C. the Phœnicians¹, who had become the dominant people in the Levant¹—the Mediterranean coast-lands east of Italy—began to increase the contacts of Asia with Europe. Phœnicia was a narrow coastal strip lying to the north of Palestine, facing the Mediterranean Sea and backed by the forested Lebanon Mountains. To the south there were no natural harbours, but Phœnicia itself had several harbours (notably Tyre and Sidon) capable of sheltering the small, shallow-draught vessels of those times. The

¹ *I.e.*, the land where the sun rises (French *lever*).

ASIA

Phœnicians were a people of maritime origin, probably from the Persian Gulf, and they soon developed a considerable trade in their own local produce—cedar-wood from the forests of Lebanon, sand for glass-making, and the *murex*, a shellfish from which the famous Tyrian purple dye was prepared.

From very early times spices, precious metals and stones, pearls, ivory, and silks reached Europe and Egypt from India, Ceylon, the East Indies, and China. In the Indian Ocean the pioneers in this trade were the sailors of Egypt, Mesopotamia, and Phœnicia, whose vessels sailed up the Red Sea to reach Egypt or up the Persian Gulf to Mesopotamia. From Mesopotamia the merchandise was carried by camel caravans across the Syrian Desert to Damascus, whence it could be conveyed along the coastal plain of Palestine, through Gaza, into Egypt. This important trade route between the fertile, well-peopled lands of Mesopotamia and Egypt passed so close to Phœnicia that the Phœnicians were able to divert much of the trade to the coast, whence their ships could convey the merchandise to all parts of the Mediterranean region.

The explorations of the Phœnicians were followed by the much more important geographical work of the Greeks, who began to learn a great deal about the countries bordering the Mediterranean Sea. With regard to Asia the greatest increase in their knowledge was undoubtedly due to Alexander the Great. His campaigns in Asia brought the Greeks into contact with peoples and lands of which they had hitherto known little or nothing. They became familiar with Persia, a little of Central Asia, and Western India. Alexander's conquest of Persia involved arduous marches through that mountainous country, and early in 329 B.C. he crossed the lofty passes of the Hindu Kush¹ in a northerly direction to

¹ The passes of these mountains are so high and so disastrous to travellers braving the storms and snows that the range has been given the appropriate name of Hindu Kush—'Slayer of Hindus.'

DISCOVERY AND EXPLORATION

the valleys of the Oxus and Jaxartes (now called the Amu Darya¹ and Syr Darya), which flow into the Aral Sea. Returning south, Alexander again crossed the Hindu Kush, and late in the year 327 B.C. invaded India. Part of his forces went through the Khyber Pass, crossing the Indus at Attock, while Alexander himself brought the rest of his army by a less direct route through Chitral, farther north. The Greeks penetrated the Punjab as far as the Beas river, a tributary of the Sutlej, but an untimely mutiny caused Alexander to decide upon retreat. Sailing down the Indus to the site of modern Hyderabad, Alexander dispatched part of his army by sea, while he himself conducted a second detachment along the difficult coastal belt of Makran (Southern Baluchistan) and Southern Persia, losing many troops and animals through the excessive summer heat. The third—and remaining—branch of the army, under Craterus, traversed Persia by a more northerly route.

Desiring to open fresh trade routes with India by sea as well as by land, Alexander instructed Nearchus, who commanded the detachment returning by sea, to examine the details of the route along which he sailed from the Indus, up the Persian Gulf, to the Tigris. Nearchus kept a log-book, from which he later compiled a detailed account of his journey. His vessels were mostly small, undecked galleys and rowing-boats, and in accordance with the practice of early navigators before the days of the compass the fleet hugged the shore,² making rather slow progress of about thirty miles a day. The mariners, accustomed to the almost tideless Mediterranean, were greatly impressed by the tides of the Indian Ocean. Compelled to beach their frail craft in stormy weather, they encountered natives who lived mainly on fish, using fish-bones and whale-bones in the construction of their huts,

¹ *Darya* = 'waterway' or 'river.'

² The Portuguese navigators who explored the coasts of Africa during the fifteenth century also kept close inshore.

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and even feeding their sheep on fish, owing to the scarcity of pasture. The voyage to the head of the Persian Gulf occupied five months from the time of leaving the Indus near the site of modern Karachi. The distance was only about 1200 miles, but Nearchus had had numerous delays, and in addition had made careful examination of the whole route. His reference to the pearl fisheries of the Persian Gulf is the earliest recorded.

Knowledge of Asia steadily grew. Megasthenes, a Greek ambassador, lived for some time in the Ganges valley about 290 B.C., and his account of the country remained the chief authority on India during the classical period. Roman military and trading expeditions brought increasing knowledge of Southern and Central Asia, and traders following the overland silk route established contact with the Chinese at Lob Nor, a lake into which the river Tarim flows.

Exploration in the Indian Ocean was continued by the Ptolemies of Egypt, as well as by the Greeks and, later, the Romans. Voyages were made to India, at first by the slow method of following the coast from the southern end of the Red Sea. But early in the reign of Tiberius (A.D. 14-37) a Roman trader named Hippalus first discovered the possibility of making quicker and more direct voyages by using the monsoon winds which blow towards India in summer and away from it in winter. By A.D. 166 traders had sailed into the Bay of Bengal and beyond to China.

Ptolemy, a Greek, writing about A.D. 150, made for himself a great name as a geographer, and the system of the universe which he described was accepted for about fifteen hundred years, until the ideas of Copernicus displaced it. Ptolemy was responsible for a very important map of the world, on which for the first time the lines of latitude and longitude were shown as curves. His map represented a great advance, despite certain serious errors: his shape of the coast-line of Southern Asia is

DISCOVERY AND EXPLORATION

extremely inaccurate; Ceylon is shown much too large; China is joined to a great land which stretches to the south, ultimately joining on to Africa, thus making the Indian Ocean completely landlocked.

In the early thirteenth century Genghis Khan, the head of a nomadic people living between Lakes Balkash and Baikal, in Central Asia, proclaimed his independence of the Emperor of China, made himself ruler of all the nomads as far west as the Caspian Sea, and finally conquered Northern China. His successor, Ogdai Khan, conquered the rest of China, and then, turning westward, subdued the Slav peoples of the Russian plains and Poland. His death in 1227 probably saved Europe from the further inroads of these Mongol peoples. With the object of enlisting the aid of the Mongols against the Turks, and possibly of making Mongol converts to Christianity, two missions were sent from Europe, and their journeys were the first important explorations in the Middle Ages. Two Franciscan friars, John de Plano Carpini, dispatched by the Pope in 1245, and William of Rubruck, sent by King Louis IX of France in 1252, learned a great deal of the lands north of the Caspian and Aral Seas and the steppe-lands stretching away into Mongolia as far as Karakorum.

Kublai Khan (1216-94), the greatest ruler of the Mongol or Tartar Empire, was overlord of a vast territory stretching from Peking—the seat of government—to approximately the western boundary of European Russia. Kublai Khan was a most cultured, enlightened, and tolerant man. Within his dominions traders and travellers of all nations and religions were free to journey without interference. Thus, for the first time the Far East came into real contact with Europe. The most famous of the medieval travellers was Marco Polo, who as a young man accompanied his father and uncle on their second journey to Peking. Setting out from Venice in 1271, they crossed to Acre, passed through Armenia, turned south through

ASIA

Bagdad and Basra, and from Ormuz, a busy port on an island at the entrance to the Persian Gulf, struck northward through Persia to the Amu Darya. Following the silk-trade route, the travellers crossed the Pamirs to Kashgar, in the Tarim basin, and, continuing eastward through the Gobi Desert, reached Peking in 1275. Their lengthy stay of seventeen years gave Marco Polo an opportunity to study the Great Plain of China, to travel through the provinces of Shansi, Shensi, Szechwan, and Yunnan, and even to see something of Burma and Cochin-China. The three Venetians returned by sea, through the Strait of Malacca and along the south and west coasts of India to the Persian Gulf. The detailed account of their journeys left by Marco Polo is one of the most interesting and valuable books of travel in the whole of literature. It presents vivid pictures of both the land- and sea-routes to China, of the Chinese lands, and of the Chinese peoples. Marco Polo was genuinely astonished at the high level of civilization, the volume of trade, and the splendid cities of the Chinese.

In the late thirteenth century and throughout the fourteenth century a number of missionaries and traders followed the example of Marco Polo in journeying to the Far East. Friar Odoric (1274-1331) travelled in Asia between the years 1316 and 1330. From Constantinople he passed through Trebizond¹ and Bagdad to Ormuz, whence by sea he reached Malabar, Ceylon, and Madras. Sailing eastward, he touched at Sumatra, Java, and Cochin-China, and then reached Canton. Odoric visited Northern China, passing through Hangchow and Nan-king, reaching the Hwang-ho and Peking by way of the Grand Canal. He returned by land through Shensi and Tibet. His account of these travels is both interesting and valuable, and in many points it supplements that of Marco Polo. Of many European traders who penetrated various parts of Asia Clavijo, a Spaniard, who was

¹ Now called Trabzon.

DISCOVERY AND EXPLORATION

sent on an embassy (1403-4) to the Emperor Timur at Samarkand, is worthy of special notice for his detailed account of that city and of the route from Constantinople, through Trebizond and Tabriz, overland to the Syr Darya and the province of Samarkand.

The Tartar rulers were driven out of China in 1370,

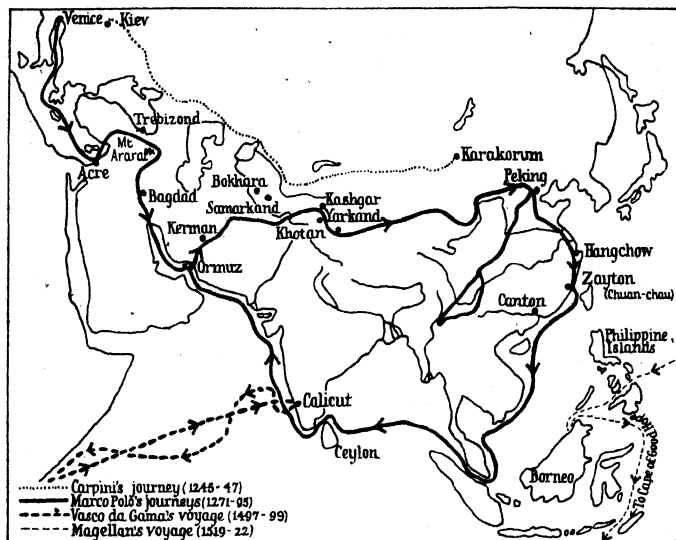


FIG. 2. EXPLORATION OF ASIA IN THE MIDDLE AGES

and this, together with the growing conquests of the Turks, once more severed Europe from Asia, almost destroying the trade in spices and other commodities. The various Crusades between A.D. 1096 and 1292 were attempts to drive the Turks from Palestine, and thus restore something of the old conditions for trade and intercourse with Asia. The Crusades failed in their chief object, but they encouraged travel and added to knowledge of the Levant. Two other plans for reaching India and the Far East by sea led to results of first-class importance. Columbus tried to

ASIA

reach Asia by sailing westward across the Atlantic. He failed in his object, but, without ever realizing it himself, discovered the New World of America. The expeditions sent out by Prince Henry the Navigator from 1418 onward had as one of their prime objects the discovery of a new route to the Indies, a route that should belong to Portugal. Prince Henry died in 1460, but his efforts were crowned with success in 1498, when Vasco da Gama reached Calicut, in India.

From an early period the Arabs carried on extensive trade in the Indian Ocean and were in contact by land with much of South-western Asia. Two Arab travellers in the Middle Ages are worthy of note—Albiruni (eleventh century), who wrote descriptions of Eastern Turkestan, Nepal, Tibet, and India, and Ibn Batuta (fourteenth century), who described his journeys in North Africa, South-western Asia, Russia, Turkestan, Afghanistan, India, and China.

Vasco da Gama rounded the Cape of Good Hope on November 22, 1497, and sailed along the east coast of Africa until he reached the coasts frequented by Arab traders. At Malindi, just north of Mombasa, an Arab pilot agreed to take the Portuguese ships to India. Assisted by the south-west monsoon, for it was early in May (1498), they reached Calicut in twenty-three days. Here they found a busy port receiving cinnamon, sapphires, and rubies from Ceylon, cloves from Malacca, and tin from Malaya. Having fulfilled the objects of the expedition by finding a sea-route to India, and by revealing its wealth in spices and precious stones, Vasco da Gama decided to return, and the first of his ships reached Lisbon in July 1499. The influence of winds and currents is apparent in the average daily run of the vessels. From Malindi to Calicut the daily average was ninety-three miles; returning to Africa, against the south-west monsoon, the average was only twenty-five miles. The Agulhas Current, running strongly south between Madagascar and the mainland,

DISCOVERY AND EXPLORATION

reduced the daily average to twenty-six miles on the outward voyage. Da Gama made another voyage to India in 1502, and again in 1524, when he was sent out as Viceroy of Portuguese India.

The Portuguese steadily extended their influence in Asia. They reached Ceylon in 1507, seized Goa in 1510, and in 1511 captured Malacca, the key to the East Indies and the China seas, where their trade steadily grew. Portuguese traders reached Canton in 1516, Peking in 1520, and in 1542 even distant Japan had been brought within their sphere of commerce. In the meantime Siam and Burma had been opened up to their traders and missionaries.

It had been the aim of Columbus and those who followed his lead across the Atlantic to discover a westward route to Eastern Asia. Ferdinand Magellan, a Portuguese pilot, was the first to reach Asia by sailing westward. Magellan had some acquaintance with the East Indies from his service with the Portuguese; but it was a Spanish expedition that he took across the Atlantic to the coast of South America in 1519. Magellan sailed through the long, winding strait to which his name has been given, turned northward along the South American coast, and then boldly steered north-westward across the Pacific. For ninety-eight days the three small vessels went on and on, with the south-east trades behind them, sighting no land but two uninhabited islands until they reached the Ladrones, or Marianne Islands. The men suffered dreadfully from lack of food and fresh water, and many died on the voyage. One of Magellan's companions¹ wrote as follows:

We only ate old biscuit reduced to powder, and full of grubs, and stinking . . . and we drank water that was yellow and stinking. We also ate the ox-hides which were under the main-yard . . . also the sawdust of wood, and rats.

¹ Pigafetta.

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Magellan had brought his voyage to a successful end when he reached the Philippine Islands in March 1521. He had at last found the westward route to the Indies; he had proved that the earth was round, and could therefore be circumnavigated. Unfortunately the great explorer himself was killed in a native quarrel in the Philippines. His comrades sailed on to Borneo, back to the Philippines, and thence to the most important object of their search, the Moluccas, or Spice Islands. One ship, the *Victoria*, set sail for Spain with a full cargo of cloves. Crossing the broad Indian Ocean, the little ship rounded the Cape of Good Hope, and finally reached Spain on September 6, 1522, thus completing the first circumnavigation of the world.

Both Spain and Portugal had discovered ocean routes to the Spice Islands, and other European nations continued the search for still more routes to the Far East. The search for a North-west Passage to the north of Canada was of no importance with regard to Asia itself, but attempts to find the North-east Passage led to considerable exploration of the northern shores of Asia. Sebastian Cabot, who had already taken part in the first voyages to the north-eastern parts of North America, was mainly responsible for the formation in 1553 of the Muscovy Company. The early voyages organized by this English company achieved little of importance, and the mouth of the Ob river was not reached until about 1584. North and north-east winds, storms, the shortness of summer, and the prevalence of ice presented serious obstacles to voyages in such high latitudes.

The Dutch were also seeking the North-east Passage, but after many failures to penetrate farther east than Novaya Zemlya they finally abandoned their efforts in 1624. But in 1596 a Dutch ship reached Java by way of the Cape of Good Hope, and Dutch vessels soon began to capture some East Indian trade from the Spaniards. The Dutch East India Company was formed in 1602, and in

DISCOVERY AND EXPLORATION

1619 the city of Batavia was founded in Java, thus beginning the Dutch conquest of the East Indies.

During the sixteenth, seventeenth, and eighteenth centuries Asia became more and more fully known to the countries of Europe, owing to the written descriptions of a growing multitude of travellers, including traders—especially those of France, the English East India Company, and the Dutch East India Company—missionaries, and others who journeyed merely for the love of travel and adventure. Their voyages extended to all parts of India, Indo-China, the East Indies, China, and Japan, while many land journeys brought to light new facts about Arabia and Central Asia. The Jesuits of a mission established at Peking in 1601 made a detailed study of China, Manchuria, Tibet, and Central Asia, and their accounts and maps were of great value.

The exploration of Northern Asia has been largely the work of the Russians. They founded Tobolsk, on the Irtysh river, in 1587, Tomsk, near the Ob river, in 1604, Yakutsk, on the Lena, in 1632, and reached the Sea of Okhotsk in 1638—very clear evidence of the rapidity with which they extended their control over the vast plains of Siberia. Before the end of the seventeenth century the Russians had entered the Amur basin and Kamchatka. In the following century they explored the northern coasts of Asia, and further increased their knowledge of their Asiatic territories. In recent years the Soviet Government has undertaken extensive researches in Arctic Asia. In the summer of 1935 four ordinary cargo steamers successfully used the North-east Passage, two sailing from Vladivostok to Murmansk and two in the opposite direction. The Russians are now confident that, with the help of more powerful ice-breakers, they will be able to carry on regular commercial traffic by this route.

Although most parts of Asia had been visited by travellers or traders before the end of the eighteenth century the continent is so vast that extensive areas, particularly

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in Central Asia, Indo-China, and Arabia, were still almost unknown. Following many pioneer journeys in the first half of the nineteenth century, there began the modern period of carefully organized scientific exploration.

The Russians continued their exploration of Northern Asia, gaining new knowledge of the basins of the great Siberian rivers (Ob, Yenisei,¹ and Lena), the Lake Baikal region, the Amur basin, Karafuto (Sakhalin), Kamchatka, and the Arctic coasts. The construction of the Trans-Siberian Railway, begun in 1891, has led to a detailed geographical examination of Southern Siberia, and in the present century practically all the geographical expeditions have been into the far north. The Russians were also responsible during the nineteenth century for the exploration of the Caucasus Mountains and of the lands lying round the Caspian and Aral Seas and Lake Balkash.

Asia Minor, Armenia, Palestine, Syria, and Mesopotamia have always been of great interest, owing to their associations with the early history of mankind. But anything like adequate exploration did not begin until the nineteenth century, when scientific explorers and archaeologists, many of them British, made detailed studies. Much of these regions had been mapped, and during the Great War the Survey of India undertook the detailed mapping of Mesopotamia, a work that has been continued since 1918.

Arabia still contains large areas that have not been properly explored, owing to the natural obstacles of the desert conditions and the political and religious difficulties. The greatest of explorers in Arabia was C. M. Doughty, whose book *Arabia Deserta*, describing his journeys in Arabia from November 1876 to August 1878, is one of the classics of travel literature. The expeditions of H. St J. B. Philby in 1917 and 1920-22 led to a great increase in our knowledge of the interior of Arabia, his book *The Heart of Arabia* being of first-class importance.

¹ A Tungus word, meaning 'Great River.'

DISCOVERY AND EXPLORATION

Mr B. Thomas explored the untraversed south in 1931, and Mr Philby again in 1932.

The mapping of India began in 1802, when a base-line was measured near Madras. The Survey of India has carried on the work of triangulation, linking up in 1913 with that of the Russians. Detailed topographical surveys, assisted by the work of military expeditions and independent explorers, have been extended to all parts of India, the northern mountains, Afghanistan, Baluchistan, and Burma. The exploration of Siam and the accurate mapping of about one-quarter of the country have been mainly due to British officials, while the French have conducted systematic surveys of French Indo-China.

The modern exploration of China began immediately after the second Chinese war of 1857-60. Many British explorers penetrated far inland along the river valleys, but the work of Baron F. von Richthofen, who had gone to the Far East with a commercial mission in 1860, was much more important. His seven expeditions, beginning at Shanghai in 1868 and covering a great extent of country, made most valuable contributions to the geology and physical geography of China. Meanwhile the British and French were working in Southern and Western China and the Russians in Manchuria.

Between 1843 and 1846 two French Lazarist missionaries, Huc and Gabet, crossed the upper region of the Hwang-ho, the terrible sandy tract of the Ordos Desert, and the desert of Kuku Nor, finally entering Lhasa, the capital city of Tibet. The modern exploration of Central Asia is largely due to the Russians, approaching from the north, and the British, penetrating from India. About the middle of the nineteenth century Indian explorers, notably Nain Singh, sent by the British authorities gained a great deal of additional knowledge of Tibet. But the greatest explorer of Central Asia was the Russian Nicolai Prjevalsky, who carried out four extensive journeys between the years 1871 and 1884. He explored the Gobi

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Desert and the source regions of the Hwang-ho, Yang-tse-kiang, Salween, and other great rivers of China, Burma, and Siam, covering the vast region between the Tian-shan and Mongolia, the Amur basin and Northern Tibet. Mongolia has been well explored in recent years, the most important expedition being that of the American Museum of Natural History in 1922-25, under the leadership of Dr R. C. Andrews, the transport equipment including seven motor-cars and over a hundred camels. Of numerous explorations in Chinese Turkestan and Tibet the journeys of the Swedish explorer Dr Sven Hedin¹ between 1895 and 1908 and in 1927-29 had the most valuable results. He explored Tibet, the Tarim basin, the Gobi Desert, and Chinese Turkestan. Sir Aurel Stein, a distinguished British archæologist, has also produced most important maps and accounts of the same regions, based upon his three expeditions between 1900 and 1916. The five Mount Everest expeditions of recent years have led to accurate and detailed knowledge of the region surrounding the world's highest peak.

One of the most spectacular journeys ever organized was that of the Citroën Trans-Asiatic Expedition. The leader was Georges-Marie Haardt, a French scientist who had accomplished the first crossing of the Sahara by a caravan of motor-cars in the winter of 1922-23, and who also conducted a similar expedition in 1924-25 from Algeria to Capetown. The Citroën cars, fitted with special track-type treads, had proved their reliability over rough ground, desert sand-dunes, and tropical marshes. Leaving Beirut, Syria, in April 1931, the Trans-Asiatic Expedition traversed Syria, Iraq, Iran² (Persia), Afghanistan, Kashmir, Sinkiang (Chinese Turkestan), and the Hwang-ho valley to Peiping (Peking). In Sinkiang 700 miles were accomplished without motors, until the party encountered

¹ Dr Hedin in 1935 was exploring Sinkiang on behalf of the Chinese Government.

² See p. 148.

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other track-type cars that had crossed from Peiping into the Tarim basin. Eleven men made the complete journey from the Mediterranean to the Yellow Sea, and their records, including natural-colour photographs and sound-recording cinematograph films, are of extraordinary interest and value. Much of the 7370-mile journey followed the route of Marco Polo, and it was the first overland exploration across the whole of Asia since the days of that great medieval traveller. The French expedition lasted $314\frac{1}{2}$ days; Marco Polo's journey took over three years.

EXERCISES

1. Draw a map to illustrate the account given in this chapter of the discovery and exploration of Asia.
2. Compile brief notes on (a) Marco Polo, (b) the Portuguese in Asia.
3. Which European peoples exercised most influence on Asiatic trade and development (a) prior to 1800, (b) since 1800?

CHAPTER II

THE SURFACE OF ASIA

POSITION, COASTS, SIZE

THE name continent is applied to any very great land mass that forms a single unit. North America, South America, Africa, Australia, and Antarctica are clearly continents. Europe and Asia together form one great continent, to which the name Eurasia, or Euro-Asia, is given. There are, however, so many differences in history, races, and development between Europe and Asia that it is convenient to regard them as separate units. There is no clearly marked boundary between them: the Ural Mountains are by no means a formidable barrier. Indeed, the boundary of European Russia for the most part does not follow the Ural Mountains, and between their southern end and the Caspian Sea there is a vast extent of plain, five hundred miles wide. The Ural Mountains, Ural river, Caspian Sea, and Caucasus Mountains are, however, usually regarded as a convenient boundary between Europe and Asia. The narrow strait of the Bosphorus (two and three-quarter miles maximum width) divides Asia from Mediterranean Europe; that of Bab-el-Mandeb¹ (fourteen miles wide) separates it from Africa at the southern end of the Red Sea; at the northern end of the Red Sea Asia is joined to Africa by the Isthmus of Suez (less than a hundred miles wide); in Bering Strait North-eastern Asia comes within forty miles of Alaska.

(The mainland of Asia almost reaches the equator in Cape Bulus (Malay peninsula), and it extends in Cape Chelyuskin to 77° 52' N., well within the Arctic Circle. In the south the East Indian islands extend beyond the

¹ 'Gate of Tears'—a reference to frequent shipwrecks.

THE SURFACE OF ASIA

equator, and the Arctic islands lie within ten degrees of the Pole. In longitude Asia stretches from 23° E. in Asia Minor almost to 170° W. in East Cape, Siberia. Asia has long coast-lines on the Arctic, Pacific, and Indian Oceans, but their total length (44,000 miles) is not relatively great when compared with that of Europe, which, although less than one-quarter the size of Asia, has 23,000 miles of coast-line. On the Arctic shores there are no inlets or peninsulas of great importance; the Pacific coast is remarkable for its peninsulas and island-festoons, enclosing a number of seas. The peninsulas of Indo-China (with Malaya), India, and Arabia project southward, separated by the Bay of Bengal and the Arabian Sea. The continental shelf is broad in the north of the continent. The other shallow seas along the coasts of the Pacific and Indian Oceans should also be noted. Islands such as Karafuto, Taiwan (Formosa), Hainan, Borneo, Java, Sumatra, and Ceylon have clearly been separated from the mainland by subsidence.

Asia is easily the largest continent, with an area of a little over 17,000,000 square miles, so that it is 145 times the size of the British Isles, and comprises nearly one-third of the land surface of the world. The continent is so vast that a large area of the interior lies over a thousand miles, and some parts more than fifteen hundred miles, from any sea.

STRUCTURE, RELIEF, AND RIVERS

Asia consists of four great structural or physical divisions—(1) the North-western Lowlands, (2) the Central Highlands, (3) the Southern Peninsular Plateaux, (4) the Alluvial Plains.

The North-western Lowlands. This great triangular expanse of lowland continues the plain of European Russia, and is flanked on the south and east by the Central Highlands. The plains extend from the Caspian Sea, where a considerable area lies below sea-level, to the

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shores of the Arctic Ocean. The most southerly part forms the low-lying plain of Turan, or Russian Turkestan, drained to the Aral Sea by the Amu Darya (1500 miles

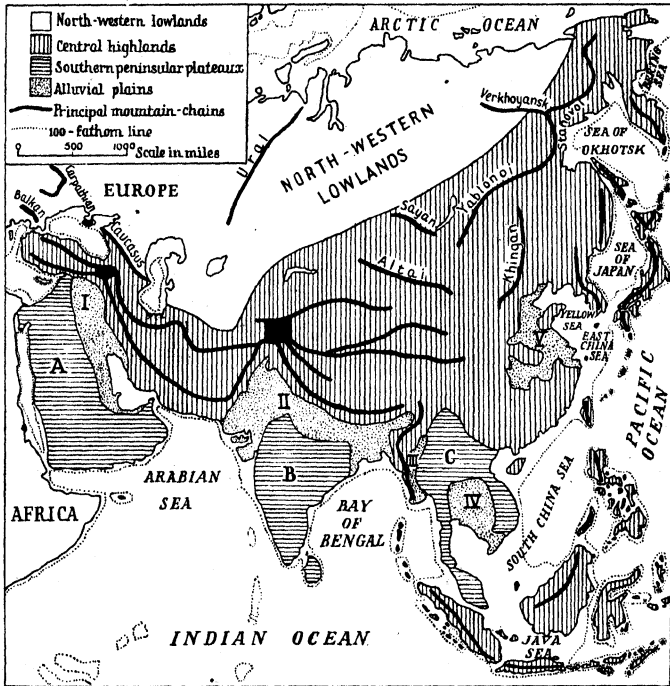


FIG. 3. STRUCTURE OF ASIA

Southern peninsular plateaux: A = Arabia, B = Dekkan, C = Yunnan, Indo-China, and the Malay peninsula. Alluvial plains: I = Mesopotamia, II = Indo-Gangetic, III = Irrawaddy, IV = Mekong, V = North China. A key to the mountain-ranges and plateaux of the Central Highlands is given separately (Fig. 4). This map should be used in conjunction with a good atlas relief map.

long) and the Syr Darya (1500 miles). Turan is an area of inland drainage with no outlet to the ocean. The western part of the plain of Siberia is low-lying and remarkably flat. It is drained by two long, sluggish rivers—the Ob (2400 miles), with its long left-bank tributary the

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higher than its course on the plateau to reach the plains. The explanation of these remarkable facts is that the rivers were flowing southward before the Himalayas existed, and as the mountain-folds were slowly raised the rivers maintained their courses by constantly wearing down their beds.

(c) The Irrawaddy and the Mekong flow through alluvial plains.

(d) The lower courses of the Hwang-ho and Yang-tse-kiang lie through extensive and very fertile alluvial plains.

Fuller descriptions of the surface features of Asia will be given in the chapters dealing with the regional geography of the continent.

EXERCISES

1. Compare and contrast Asia and North America in position, relief, and rivers.
2. Draw relief sections across Asia along the meridian 80° E. and the parallel 40° N. Insert the names of highlands, rivers, plains, etc.
3. Draw a sketch-map to show the structural divisions of Asia. Add brief explanatory notes.

CHAPTER III

THE CLIMATES OF ASIA

As Asia is the greatest land mass and lies mainly in the temperate zone there is a vast region in the interior with an extreme continental climate and light or scanty rainfall. The continent extends from equatorial to Arctic regions; about one-twelfth of the total area is more than 12,000 feet in height, and the highest peaks exceed five miles. Consequently there are great variations in climate due to both latitude and elevation. The northern plains lie open to the Arctic Ocean, but the central mountains, with their east and west trend, form a great climatic barrier.

TEMPERATURE CONDITIONS IN SUMMER

Temperature conditions in July may be taken as typical of the summer as a whole. The isotherm map (Fig. 6) represents conditions as though the entire continent were at sea-level. It is quite clear, however, that the coldest regions lie not in the far north, but on the high mountains and plateaux, many of which reach far beyond the permanent snow-line. In July the sun is vertical at noon just south of the Tropic of Cancer, and the regions of greatest heat are the plains immediately north of that line, where some areas have a mean July temperature of about 96° F. This is a much higher mean temperature than is experienced in any month near the equator, where the temperature is approximately 80° F. in every month. The higher temperatures round the tropic are explained by the greater length of daylight in summer (thirteen or fourteen hours, as compared with a constant twelve at the equator), when the sun is vertical at noon. In addition, these excessively hot regions are

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lands of scanty rainfall, without the screen of clouds so common in equatorial regions.

Beyond the mountain belt temperature naturally falls

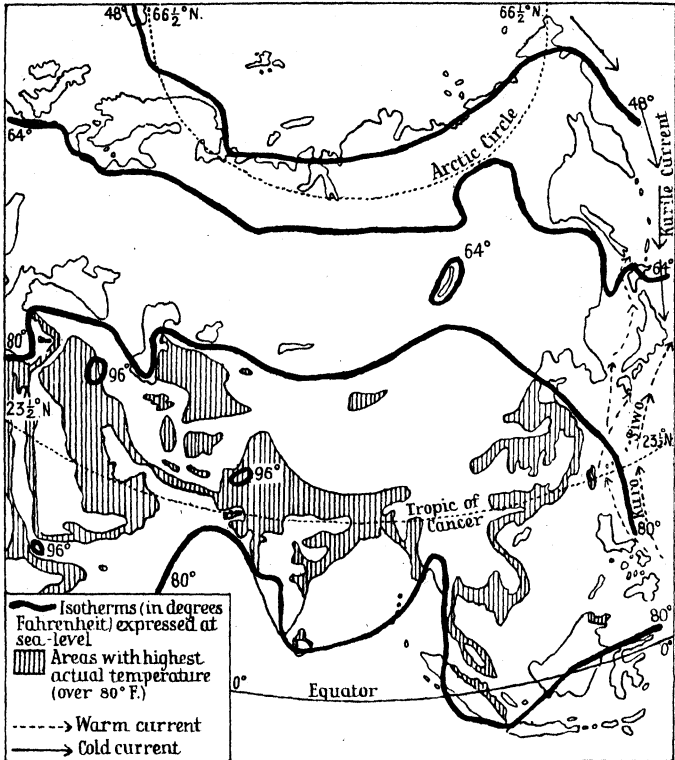


FIG. 6. JULY TEMPERATURE CONDITIONS IN ASIA: NORTHERN SUMMER

Comparison with a relief map will indicate those regions in which temperature is greatly reduced by height.

with higher latitudes, the extreme north lying beyond the 50° F. isotherm, which marks approximately the northern limit of trees. The isotherms in general are regular—that is, they follow the parallels of latitude—an indication that

THE CLIMATES OF ASIA

the temperature depends upon insolation (sun influence), and is not influenced to any extent by the sea. The pronounced southward bend of the isotherms on the Pacific coast of Siberia, however, is due to the chilling influence of the Kamchatka, or Kurile, Current, which resembles the Labrador Current of North America.

TEMPERATURE CONDITIONS IN WINTER

An examination of the January map at once reveals the great contrast with summer conditions. In Southern India, Ceylon, Malaya, and the East Indies uniform insolation and oceanic influence make seasonal changes very small indeed. Tropical Asia has a January temperature higher than that of London (64° F.) in July; but, passing northward, the weaker sun influence is apparent in the more rapid decline of temperature as compared with July, and more than half the continent is liable to prolonged frosts. The great mountain barrier shuts off from India the cold winds of the interior that have such a marked effect in Eastern Asia. The east and west trend of the isotherms again indicates an absence of sea influence. By contrast in Western Europe the isotherms run north and south, owing to the warming influence of the North Atlantic, brought by the prevailing westerly winds. On the Pacific coast the isotherms curve northward, because of the warmth of that ocean and the Kuro Siwo ('Black Stream'), which surpasses the Gulf Stream in volume and length. This warming influence does not extend far inland, however, since the prevailing winter winds blow out towards the ocean from the region of intensely cold, dense air of the interior. In the far north-east, in the Lena valley, there is a region with a mean January temperature of below -60° F., or 92° below freezing-point. Iceland, in the same latitude, has a temperature of about 30° F. The enormous difference is due to the absence of oceanic warmth in the Lena valley: it

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is too far away to be influenced by either the Atlantic or the Indian Ocean, the Arctic Ocean is frozen, and no

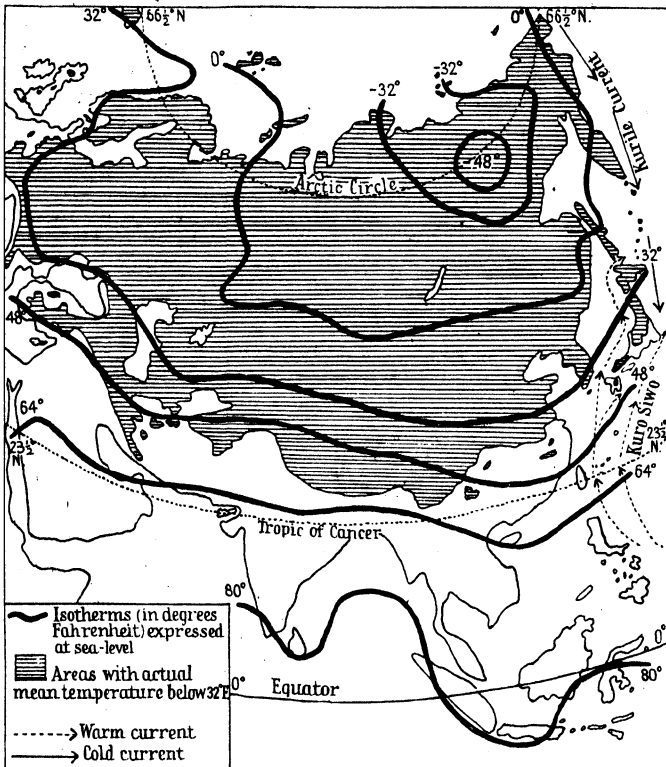


FIG. 7. JANUARY TEMPERATURE CONDITIONS IN ASIA:
NORTHERN WINTER

Note the intensely cold region of North-eastern Asia and the extensive region with a mean temperature below 32° F.

winds blow to it from the Pacific. The range of temperature, about 120° F., may be contrasted with an average range of 20° F. in England. The extreme continental climate of the heart of Asia is due to the remarkable

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severity of its' winters, rather than to excessive heat in summer.

PRESSURE, WINDS, AND RAINFALL

Asia is a great land mass, with an ocean on its equatorial side, as well as to the east. In summer the interior of the continent, and in particular the Indo-Gangetic plain, becomes very hot, the air expands, there are strong ascending air-currents, and the pressure is low. On the relatively cool Indian and Pacific Oceans the air is denser, and the pressure is high. Consequently strong winds blow in from sea to land—from the south-west to India and Indo-China, from the south and south-east to China and Japan. As these warm winds have crossed immense stretches of ocean they are heavily laden with water-vapour, and bring heavy rains to the greater part of India, Indo-China, and Japan, especially where there are mountains to drive the winds upward, thus causing them to expand and cool. Winds also blow into the continent from the Atlantic and Arctic Oceans.

As the continent cools down at the end of the summer the air contracts, gets denser, and the pressure becomes higher. The in-blowing winds weaken and die away. At last, with the approach of winter, the pressure gets so high on the mainland that winds begin to blow out towards the relatively warmer Indian and Pacific Oceans, where the air is less dense and the pressure lower. In India and Indo-China the winds blow from the north-east; in China and Japan they blow from the north-west, turning to become north-east winds on the Pacific. The winds will obviously be dry, except where they have had the opportunity to pick up moisture in crossing the sea, as on their course to Ceylon, Japan, or Eastern China.

Because of the complete reversal of the wind systems between summer and winter Southern and Eastern Asia are said to have a monsoon climate, the word monsoon being derived from an Arabic word *mausim*, meaning

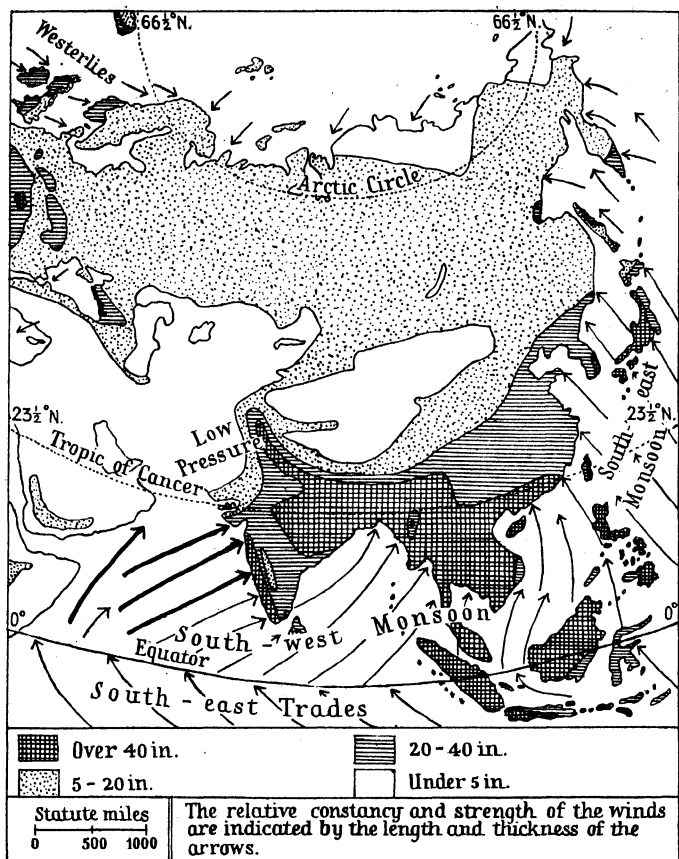


FIG. 8. RAINFALL IN ASIA FROM MAY 1 TO OCTOBER 31:
NORTHERN SUMMER

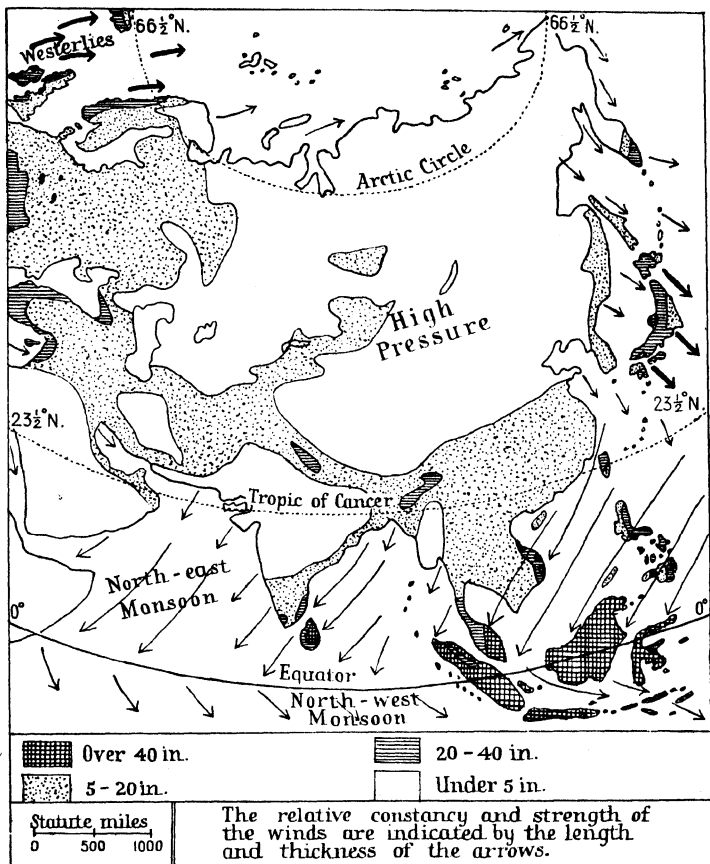


FIG. 9. RAINFALL IN ASIA FROM NOVEMBER 1 TO APRIL 30:
NORTHERN WINTER

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'season.' The winds themselves are usually spoken of as monsoons. The summer monsoon is like a gigantic sea-breeze; the winter monsoon resembles a land-breeze. The monsoon may be either tropical or temperate.

The mean annual rainfall map shows to how great an

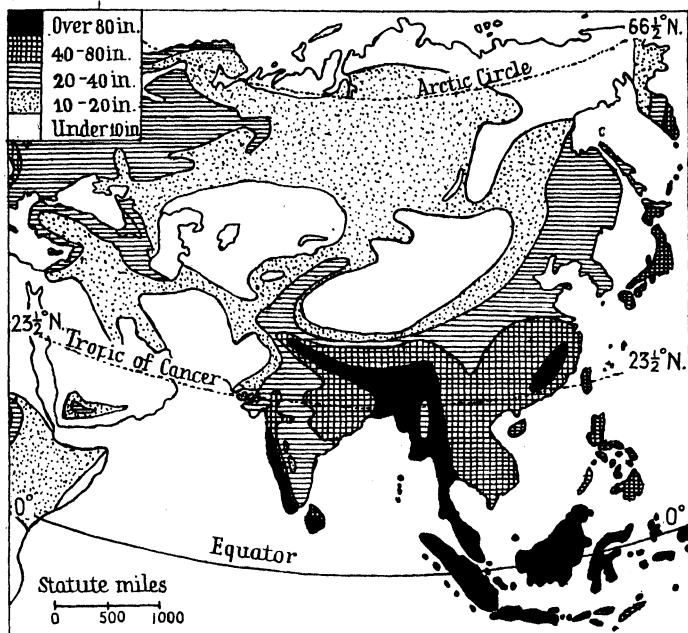


FIG. 10. MEAN ANNUAL RAINFALL IN ASIA

extent Asia is dependent on monsoon rains. The desert conditions of the Sahara are continued in Arabia, Iran, Afghanistan, Baluchistan, and the Thar Desert of North-west India. There are also regions of scanty rainfall in the heart of Asia, owing to distance from the sea and the presence of mountain barriers. In the far north the winds are cold throughout the greater part of the year, and their capacity for water-vapour is in consequence small.

THE CLIMATES OF ASIA

The seasonal rainfall map shows that over the greater part of Asia the summer half of the year is the wetter. The Siberian plain receives most of its scanty rainfall in summer, when winds from the oceans are able to penetrate far inland, while in winter the whole tendency is

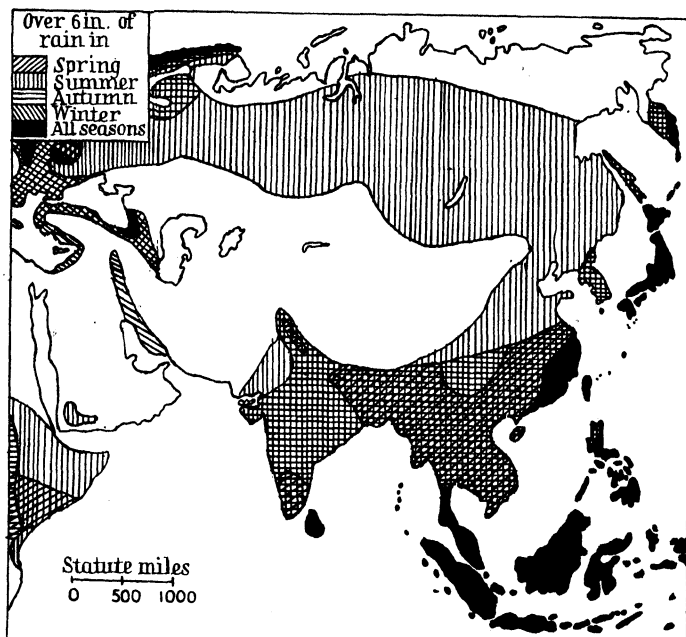


FIG. 11. SEASONAL DISTRIBUTION OF RAINFALL IN ASIA

for winds to blow out from the land. In Asia Minor, Palestine, and Armenia, on the Caucasus and Elburz Mountains, and even in Mesopotamia, the winter half of the year is wet, the summer being dry. This is clearly a region of Mediterranean climate, in which the westerly winds and cyclonic storms occur in the Mediterranean Sea in winter, but not in summer.

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There are great climatic contrasts in Asia. Only the broad general features of climate have been described in this chapter, and more detailed accounts will be given in later chapters describing the various regions of the continent.

EXERCISES

MEAN MONTHLY TEMPERATURES (IN DEGREES FAHRENHEIT)

PLACE	ALT IN FEET	J	F	M	A	My	Jn	Jy	Aug	S.	O	N	D
Penang	23	80	80	81	82	81	81	80	80	80	80	79	79
Hong Kong	108	60	58	63	70	77	81	82	81	80	76	69	63
Vladivostok	50	5	12	26	39	49	57	66	69	61	49	30	14
Jacobabad	186	57	62	74	85	94	98	95	92	89	79	67	59
Leh	11,503	17	19	31	43	50	58	63	61	54	43	32	22
Haifa	115	54	57	60	66	70	76	80	82	80	75	64	58
Verkhoyansk	330	-59	-47	-24	7	35	55	60	50	36	5	-34	-53

MEAN MONTHLY RAINFALL (IN INCHES)

PLACF	J	F	M	A	My	Jn	Jy	Aug	S	O	N	D	ANNUAL TOTAL
Penang	3.9	3.0	4.7	7.0	11.0	7.2	8.9	12.8	19.0	16.1	10.9	4.8	109.3
Hong Kong	1.0	1.3	3.3	5.4	12.4	16.3	15.9	14.8	12.5	5.2	1.1	1.0	90.2
Vladivostok	0.1	0.2	0.3	1.2	1.3	1.5	2.2	3.5	2.4	1.6	0.5	0.2	15.0
Jacobabad	0.3	0.3	0.2	0.2	0.2	0.1	1.2	1.2	0.2	0	0.1	0.2	4.2
Leh	0.3	0.4	0.2	0.2	0.3	0.2	0.5	0.5	0.2	0.2	0	0.2	3.2
Haifa	6.1	3.5	2.1	1.0	0.3	0	0	0	0	0.6	4.4	7.0	25.0
Verkhoyansk	0.2	0.1	0	0.1	0.2	0.5	1.2	0.9	0.2	0.2	0.2	0.2	4.0

1. Represent the above temperature and rainfall figures in diagram form on squared paper. Calculate the range of temperature in each case.

2. Find each place named in the above tables, state its location, and describe and explain its climate.

3. Describe and account for the climatic changes that would be noted in a journey in winter from the Arctic Ocean to Ceylon.

4. Compare the map of annual rainfall in Asia with one showing the density of population, and try to explain what you observe.

CHAPTER IV

NATURAL VEGETATION, ANIMALS, AND PEOPLES OF ASIA

THE natural vegetation of any region depends most of all upon the rainfall conditions, which determine whether there shall be forest, grassland, or desert. Temperature conditions decide the kind of forest, grassland, or desert, while minor variations are due to soil conditions.

THE FORESTS

The Tropical Forests. The lowlands of the Malay peninsula and the East Indies have the typical equatorial climate, with abundant rainfall throughout the year. Their forests resemble those of the Amazon lowlands, the selvas, remarkable for their dense growth and variety of species, including palms, some hardwood trees, and climbing plants, with mangrove swamps along the coasts. Apart from the Malay peninsula, Indo-China has the typical monsoon climate. The lowlands are forested, except for fairly extensive areas in the south that have long been under cultivation. Among the more important plants native to this region are rice, bananas, sugar-cane, pepper, ginger, cinnamon, gutta-percha, tea, camphor, and teak.

The tropical forests of India depend on the monsoon rains, and consequently there are wide variations. In the very wet lowlands of the Malabar Coast, Ceylon, and Burma the absence of any prolonged dry season permits the growth of dense evergreen forests. The Ganges plain has been intensively cultivated for so long that it is practically treeless, but the greater part of it could support forests. The delta is still an impenetrable swamp forest,

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mixed with mangroves. The mountains north and east of the Ganges plain have the heaviest rainfall in the world, and support on their lower slopes dense evergreen forests similar to those of the montaña, on the eastern slopes of the Brazilian Andes. The drier conditions of the Dekkan are reflected in the more open forests, including teak, sandalwood, and cedar, many trees shedding their leaves in the dry season. The deeply cut river valleys and the southern part of the plateau are densely wooded, but in drier areas, especially under the lee—*i.e.*, to the east—of both the Western and Eastern Ghats, there are many scrub plants, and even thorny evergreen shrubs.

Throughout the vast forest-lands of Southern Asia there is a bewildering variety of animal life. Of large animals the chief are the elephant, which is not so big as the African type, rhinoceros, tiger, perhaps the most ferocious of all animals, leopard, and wild boar. Of the many creatures adapted to life in the tangled undergrowth or among the trees the following are typical—monkeys, including the orang of Sumatra and Borneo and the gibbon, both of which have very long arms and are skilful climbers; the flying lemur, which has a parachute of skin connecting its four limbs and tail, enabling it to take long leaps from tree to tree; the tapir, a relative of the pig; squirrels of many kinds; brightly plumaged birds, such as parrots and parakeets; lizards, snakes, frogs, and butterflies; leeches; and fish, including some species that come out of the water, climb plants—even trees!—and feed on insects.

The Eastern Temperate Forests. In Eastern Asia from about latitude 50° N. to the Tropic of Cancer there is a region which receives sufficient rainfall for trees, the greater part of the rain falling in the summer half of the year, when it is most needed. In the northern part of the region, the middle Amur basin and Chosen (Korea), the long, severe winters check plant-growth, so that the trees are deciduous: they shed their leaves in autumn and sleep

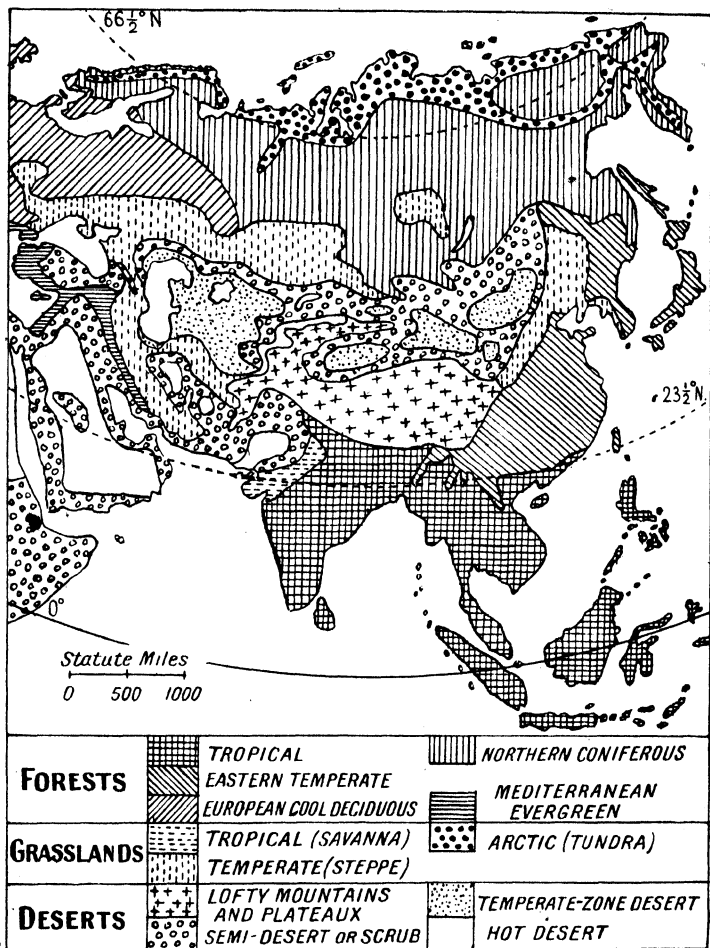


FIG. 12. NATURAL VEGETATION OF ASIA

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throughout the winter. The forests resemble those of Western Europe, the chief trees being Mongolian oak and Manchurian varieties of walnut, hazel-nut, barberry, vine, maple, elm, lime, and rowan. On the mountains there are larches, cedars, pines, birches, and aspens. The islands of Sakhalin or Karafuto and Hokkaido and the northern part of Honshiu belong to the same forest belt. .

In China proper climatic changes as one goes from north to south are reflected in the changing vegetation. The winters of the Hwang-ho basin are severe, and the trees already named are typical of the area, although more southerly specimens are found. Northern China, however, has been cultivated for so long and so intensively that there are very few trees. Large crops of barley, millet, wheat, maize, cotton, tobacco, and hemp are grown to support the dense population.

In Central and Southern China the summers are longer, warmer, and wetter; the winters are shorter and much milder. Plant life is consequently of a very luxurious type, especially in the mountainous south-west. The trees are mostly evergreens, abundantly mixed with deciduous and coniferous trees. Camphor-wood, camellias, oaks, hazels, laurels, chestnuts, maples, cypresses, hardy palms, and pines are important trees; there is the glorious beauty of flowering shrubs, such as rhododendrons, magnolias, and azaleas; there are bamboos, fuchsias, roses, chrysanthemums, and japonica. This region is undoubtedly one of the most productive in the world, supporting a great variety of crops—rice, cotton, mulberries, tea, beans, grain, sugar-cane, hemp, tobacco, vegetables, and fruits. Southern Japan falls within the same vegetation belt. There are numerous monkeys, deer, birds, and snakes in the forests, but domesticated animals, such as sheep, goats, cattle, and pigs, are more important.

The Northern Coniferous Forests. The Russian name taiga is generally applied to the coniferous forests of Siberia, which continue those of Northern Europe and

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form the greatest belt of temperate forests in the world. The long, intensely cold winters and the light rainfall make the land unsuited to deciduous trees, excepting the hardy aspen, birch, willow, and alder, and even the evergreen conifers—pine, larch, spruce—tend to be rather stunted in height and girth. In the ill-drained plains of Western Siberia the forests are broken by swamps of reeds, rushes, and sedges. Spruce-trees flourish on the wetter soils, where they form dark, dense forests devoid of undergrowth. The larch forms more open forests, with an undergrowth of bramble and wild rose, berry-bearing bushes (cranberry, crowberry, whortleberry), small rhododendrons, mosses, and ferns. Seeds, nuts, berries, leaves, twigs, and bark furnish abundant food for forest animals—herbivorous (plant-eating) animals, such as the red deer, elk, beaver, porcupine, and various kinds of squirrel, and carnivorous (flesh-eating) animals, such as the lynx, wolf, fox, bear, marten, weasel, stoat, mink, badger, wild dog, and, in the south, the tiger. Birds, such as grouse, woodpeckers, and jays, are very numerous. The fur-bearing animals are a valuable resource of the taiga region.

The Mediterranean Evergreen Forests. Western Asia Minor, Syria, and Palestine have the typical Mediterranean climate, marked by hot, dry summers and mild, rainy winters. The olive, orange, evergreen oak, laurel, fig, cypress, cedar, and other evergreen trees and shrubs, adapted to the long summer drought by long roots and small, glossy leaves, often coated with hair or resin to prevent loss of moisture, all flourish in this region. The mountainous region lying immediately east and north of Mesopotamia continues the Mediterranean vegetation on slopes that face the south-westerlies of winter. In drier valleys of these Mediterranean lands or where man has cleared away the trees the characteristic vegetation is thorny evergreen scrub plants, known as maquis. Sheep and goats are the most important animals.

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THE GRASSLANDS

The grasslands occur naturally in regions of light or scanty rainfall and, usually, of excessive evaporation, where the lack of permanent moisture in the subsoil makes tree-growth difficult.

The Savannas, or Tropical Grasslands. There are no extensive areas of savanna that might be compared with that of the Sudan, but the drier parts of the Dekkan, especially in the north-west, the Mekong basin, and the higher parts of the East Indies are savanna rather than forest-lands.

The Steppes, or Temperate Grasslands. The steppes of Central Asia continue those of European Russia, and stretch in an almost unbroken belt across the continent into Mongolia and Manchukuo. The Kirghiz steppe is a broad expanse lying between the taiga on the north and the desert of Turan on the south. The northern part of the Kirghiz steppe has a parklike appearance, with scattered clumps of birch-trees and willows and poplars near the marshes. Passing south, the increasing aridity prevents tree-growth, and wiry grasses, with an abundance of water-storing bulbs and tubers, represent the typical plant life of the steppe. The climate is even more extreme than that of the North American prairies: summers are hot and winters cold, with biting winds¹ and whirling snowstorms; rainfall is light (between ten and twenty inches a year), and it falls almost entirely in spring and summer. Prolonged droughts are liable to occur. In spring the melting snows moisten the ground, and grasses and flowers, such as lilies and tulips, grow rapidly with the increasing warmth and the light rainfall. The diminishing rainfall and the burning heat of summer cause the grasses and flowers to wither and die, leaving their seeds or roots to await the renewed life of the following spring.

¹ The buran, a dreadful winter storm-wind, often brings widespread death and destruction.

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In autumn the landscape is brown, bare, and desolate. In Mongolia there is a fringe of steppe-land bordering the higher mountains and penetrating their valleys. The land is carpeted with beautiful flowers in spring, but in summer it is desert-like. The Manchurian plain, almost enclosed by mountains, has an extreme climate, with bitterly cold northerly winds in winter and sweltering heat in summer. The rains of spring and summer are sufficient to support only dry grasses, bulbs, and hardy bushes.

The chief animals of the steppes are grass-eaters, such as the saiga antelope, Persian and Mongolian gazelles, the wild horse (tarpan), the wild ass (kiang), and the Bactrian or two-humped camel. In addition there are domesticated sheep, cattle, horses, and goats. There is an abundance of grasses during the wet growing season, but at other times, especially during the prolonged droughts that are so marked a feature of the climate, there is a shortage of pasture. Consequently the animals tend to move about in great herds from one pasture to another, and the possibility of such migrations being over long distances results in the development of speed. The herding instinct, keen senses, and speed are all protections against the dangers of attack by other animals.

Rodents are very numerous, many living in burrows underground as a protection against storms and enemies. Quite commonly they sleep during the harsh winter, when it would be difficult to obtain food. Such animals are the marmot, like a fat rabbit with short legs; the jerboa, a kind of jumping mouse; the suslik, a species of squirrel with very short tail and tiny ears, which in autumn stores a large quantity of seeds, berries, roots, etc., as food for the winter; the pica, or tailless hare, which forms the food of the flesh-eating animals, such as the manul cat (about the size of our domestic cat) and the tiger. Typical birds of the steppe-lands are bustards, which can run swiftly as well as fly, sand-grouse, Siberian larks, curlews, snipe, ducks, and geese.

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The Tundra, or Arctic Grasslands. Tundra is the Russian name for treeless lands in high latitudes. The tundra of the extreme north of Asia continues that of Northern Europe, but is more extensive. On its southern margin it gradually merges into the taiga. There are fringes of tundra round the shores of the Arctic islands, such as Franz Josef Land, Novaya Zemlya, and the New Siberian Islands. The winters are very long, dark, and intensely cold, although the atmosphere is clear and dry. The rivers, lakes, and sea are all frozen. In the brief summer there is almost continuous sunshine, but seldom great heat, as the sun does not rise much above the horizon. The snow melts, rivers and lakes are completely thawed, the sea does not freeze, and the ground is thawed to a depth of one or two feet. There is little rain or snow in the tundra, but there is also little evaporation, and in summer there are extensive swamps, lakes, and pools. Long-rooted plants cannot grow, but there is a profusion of mosses, lichens, grasses, and stunted bushes, such as dwarf birch-trees, willows, alders, crowberries, whortleberries, bear-berries, and cranberries. In summer the drier, sunny slopes are ablaze with saxifrages, Arctic poppies, buttercups, gentians, harebells, and other beautiful flowers. Their growth is rapid in the long, clear days, and they soon complete their life cycle, leaving their seeds for the following summer.

The tundra is by no means a desert, and there is a surprising variety of animal life, especially in summer. Even in winter plant food, such as mosses and lichens, is available, for the snowfall is generally light. Reindeer are the most important animals of the Asiatic tundra, although in winter they tend to migrate to the forests. Rodents are abundant, even in winter. The Arctic hare feeds on the grasses that project through the snow. The lemming, about the size of a mole, lives in runs and burrows beneath the snow. Among flesh-eating animals there are the wolf and its near relative the Eskimo dog,

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and the Arctic fox and ermine, both of which have thick white coats in winter. Of the animals that find their food in the far northern seas the chief are the polar bear, seal, walrus, and whale. There are fish in the rivers, lakes, and seas, although fresh-water fish are not numerous.

Thousands of birds—gulls, geese, eider-ducks, guillemots, terns, sandpipers, petrels, and snow-buntings—come north to the tundra in summer to bring up their young broods in a land where food is plentiful. As winter approaches they fly southward to warmer regions. The ptarmigan, or snow-grouse, is, however, frequently found in large numbers even in winter, when its colour changes to white. The snowy owl and the raven, which prey upon ptarmigan and other birds, lemmings, and even fish are also fairly common. Mosquitoes are so numerous in summer, when their eggs hatch out in stagnant pools, as to constitute a veritable plague. There are in addition huge swarms of other flies, bees, and butterflies, which disappear with the summer, leaving their eggs to survive the long, severe winter.

THE DESERTS

The Hot Deserts. The desert conditions of the Sahara are continued beyond the Red Sea, and form an almost unbroken stretch of desert and scrub-land through Arabia, Iran, Baluchistan, and Afghanistan to the lower Indus basin and the Thar Desert. The whole region lies in the north-east trade-wind belt, and is unaffected by the summer monsoon rains. The atmosphere is dry and clear, and rainfall is rare and uncertain. Areas of absolute desert are broken by oases of date-palms wherever there are springs or wells, and the slight increase of rainfall round the desert margins supports a vegetation of coarse grasses and thorny shrubs, such as Arabian acacia and tamarix. The snows of lofty ranges, such as the Elburz,

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Zagros, and Hindu Kush, feed streams which soon disappear in the burning deserts, but serve to support scrub plants. During a rainy spell the desert may be beautiful with a myriad gorgeous flowers, which miraculously burst forth from the bare ground. Antelopes and gazelles are found in these arid regions, in addition to camels, which are native to the Asiatic steppes. Horses, sheep, goats, and cattle are kept at oases or on the marginal pastures of the deserts.

The Temperate Zone Deserts. Between the steppelands and hot deserts there is another series of desert and scrub-lands, which include the interior of Asia Minor, the depressions surrounding the Caspian and Aral Seas, the Tarim basin, and the greater part of Mongolia. The climate is marked by great extremes of temperature, severe winters, and scanty precipitation. Central Asia Minor is a region of salt marshes, sandy wastes, scattered brush and shrubs, and thorny plants. Turan, the region between the Caspian Sea and the great mountain belt of Central Asia, is a low depression formerly occupied by a vast sea. Extensive areas are quite devoid of plants; others are saline clays, with scattered salt-bushes, dusty-grey wormwood, and low thorny scrub. A fairly common tree in some parts is the saxaul, which stores water in its grey twisted trunk and has scaly twigs instead of leaves. The Amu Darya and Syr Darya form long, narrow oases through the desert, and there is a fertile belt along the margin of the highlands, watered by their springs and rivers. The Tarim basin and Mongolia are sandy deserts broken by rivers fringed with poplars and willows and by oases along the foot of the mountain-ranges.

The animal life of these desert belts resembles that of the steppes into which they merge. There are gazelles, camels, jerboas, tailless hares, lizards, and snakes.

The Lofty Mountains and Plateaux. In the great mountain and plateau belt of Asia the character of the natural vegetation differs widely in accordance with variations

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in rainfall and temperature changes due to altitude and exposure to the sun. In the south-eastern section of the Himalayas forests (chiefly of sal-tree), swampy jungles, and grasslands, with tall palms and bamboos, reach to about 3000 feet up the mountain-slopes. Up to 6500 feet there are forests of evergreens, along with pines and oaks. In the next belt, reaching up to 11,500 feet, there are deciduous trees, then conifers and rhododendrons, followed by Alpine pastures, bright flowers, and shrubs up to 16,000 feet, beyond which extend the eternal snows. The drier climate of the North-western Himalayas is reflected in the more open forests of evergreens with small, tough leaves, walnuts, oaks, pines, firs, and deodars, with an open evergreen scrub on some slopes. On the wetter slopes of the mountain-ranges farther north, such as the Tian-shan, Kuen-lun, and Altai, coniferous forests give place with increasing altitude to Alpine flowers and meadows, which ascend to the snow-line. The huge, lofty plateau of Tibet, enclosed and crossed by the highest ranges in the world, receives scanty precipitation, largely in the form of snow. The greater part, especially the north-west, is a cold desert. Tufted grasses, reeds, and stunted plants may grow on the better soils and along the river-banks. Plants are more numerous in Eastern Tibet, and the Alpine meadows support many yaks, sheep, wild asses, antelopes, and other animals. The more sheltered plains of Southern Tibet have a more favourable climate, so that vegetation is more abundant, and tree-growth is possible. The Pamirs are another lofty plateau similar to Tibet. In the alluvial valleys there are pastures, but on the higher areas there are little more than dry, coarse tufts of grass or low, crawling bushes.

Langurs (a species of monkey), insect-eating shrews, lynxes, wild dogs, foxes, bears, wild sheep and goats, gazelles, antelopes, musk-deer, marmots, and birds of the pheasant family are typical of the fauna of the Himalayas and Tibet. Just as the musk-ox is suited to the North

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American tundra, the yak of Tibet is admirably adapted for life at a great elevation. The yak is an ox with curved horns and long, hairy coat; it is surprisingly agile, remarkably hardy, and capable of resisting intense cold. It will push through deep snow, cross glaciers, or ford cold mountain torrents, and can ascend as high as 20,000 feet above sea-level.

Wallace's Line. Dr A. R. Wallace, the naturalist, separated what he regarded as the Asiatic region of animals from the Australian by a line between the islands of Bali and Lombok (Lesser Sunda Islands) and between Borneo and Celebes. The line follows the edge of the continental shelf from which rise Sumatra, Java, Bali, Borneo, and the Philippines, all of which are clearly portions of Asia separated from the mainland by subsidence. More recent research has shown that the animal life of the islands near Wallace's Line is of mixed Asiatic-Australian type, and some naturalists regard the animals of Celebes as definitely Asiatic in origin.

It is of interest to note that most of our vegetable products and many of our domesticated animals originated in Asia. Wheat, barley, onions, figs, almonds, walnuts, and chestnuts are probably natives of South-western Asia. Tea, oranges, and apricots first came from China. Rice, sugar-cane, ginger, pepper, cardamoms, cinnamon, opium poppy, indigo, gamboge and turmeric (two yellow dyes of vegetable origin), gutta-percha, teak, ebony, jute, kapok, ramie (or China grass), and the most widely grown variety of cotton—all these important commodities have their original homes in India, Indo-China, or the East Indies. The lemon and lime are derived from North-west India, hemp from China and other parts of temperate Asia, the soya-bean from South-east Asia, and the grape-vine from the region extending from Afghanistan to the Carpathians. The Moluccas have given us Manila hemp (also native to the Philippines), cloves, and nutmegs.

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The rearing of silkworms was first practised in China. Several varieties of sheep are natives of Central Asia, while the camel and horse belong to the Asiatic steppes. The Angora goat of Asia Minor, the Kashmir goat of the Himalayas, and the yak of Tibet are other Asiatic animals of importance.

THE PEOPLES OF ASIA

Ancient traditions, as in the Book of Genesis, place the cradle of the human race in Asia, and modern scientific investigations tend to confirm this view. The great movements of Asiatic peoples recorded in history have been originated and controlled by geographical factors. During the Ice Age ice-sheets extended to about 50° N. latitude. With the melting of the ice-sheets conditions over a long period were moist enough to support grasslands, but during the last few thousand years there has been a gradual desiccation, or drying up, of the plateaux and plains of Central and Southern Asia. The decline in fertility has not been continuous, but there have occurred from time to time long series of drought-years, when the grasses almost disappeared. At such periods there have been great movements of peoples from the arid regions to the marginal areas of greater fertility. These movements may be summarized as follows:

- (a) Into Mesopotamia from the plateau of Irania and Arabia.
- (b) Into the plains of South-western Asia and South-eastern Europe, by way of the Zungarian Gate, from the Mongolian plateau.
- (c) Into the Indo-Gangetic plain from the north-west (Turkestan, Afghanistan, Baluchistan), and from the north-east (Assam, Bhutan, and Nepal) to a less extent.
- (d) Into the eastern plains of Manchukuo and China, along the steppe-land fringe of Northern Mon-

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golia or by way of the Tarim basin and the Yellow river—the route by which the original Chinese immigrants came.

- (e) Into Indo-China and Malaya from Eastern Tibet and Western China by following the longitudinal river valleys.
- (f) Into the tundra lands along the valleys of the Ob and Irtysh.

In the heart of the region from which the migrations began there is a relative purity of racial type (Mongolian), but in the marginal regions into which peoples have crowded—Mesopotamia, Palestine, Indo-China, Malaya, and China—racial types are very complex.

The most typically Asiatic peoples live east of the Caspian Sea, in North and Central Asia, and are of three main types:

(a) The Mongols are a broad-headed people of medium height, yellowish skin, flat face, high cheek-bones, straight hair, and curiously folded eyelids, which give the eyes an oblique appearance. The purest Mongols are those of the Mongolian plateau. The Tungus are a Mongol people who inhabit the greater part of the Siberian forests, reaching north into the tundra and south into Manchukuo, the Manchus being a branch of the same family. The Chinese, Japanese, and Koreans have Mongol characteristics, but are peoples of mixed race, differing from one another.

(b) The Ugrians are very broad-headed, but their skin is not so yellow as that of the Mongols, and they have not the Mongolian eye. The Ugrian peoples include the Ostyaks of the Ob basin, the Samoyeds of the Western Asiatic tundra, the Lapps, the Northern Finns, the Bulgars, and the Magyars of Hungary.

(c) The Turki peoples differ from the Mongols in having straight eyes, whiter skins, and taller stature. They include the Kirghiz (an uncomplimentary name

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meaning 'Freebooters'), or Kazaks, who still live for the most part the nomadic pastoral life of their remote ancestors in the lands east of the Caspian Sea, extending

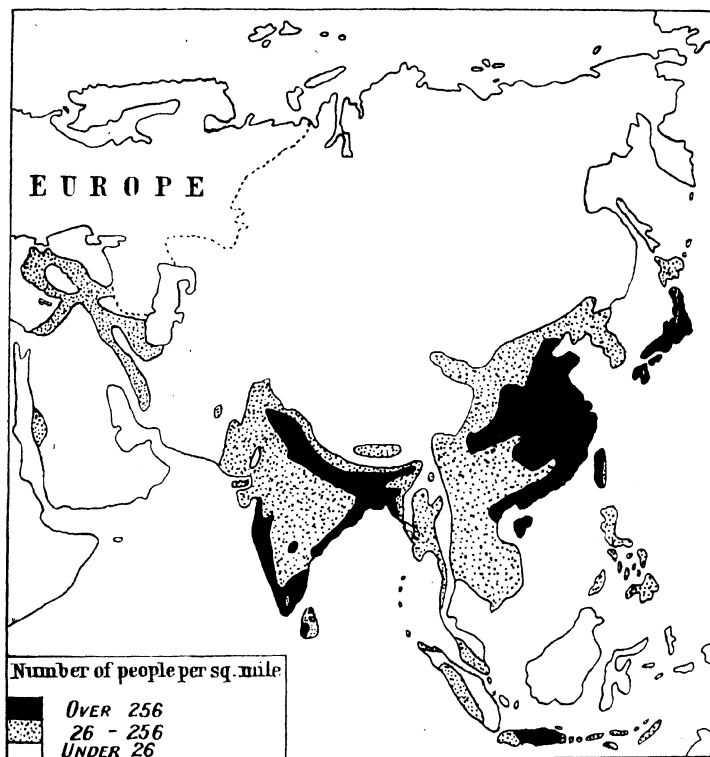


FIG. 13. DENSITY OF POPULATION OF ASIA

right into Russian Turkestan; the Kara Kirghiz ('Black Kirghiz'), one of the oldest peoples in Asia, who came from Western Mongolia and ultimately settled in the regions of the Pamirs, Tian-shan, and Hindu Kush; the Turkomans, who live between the Caspian and Aral Seas;

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the Osmanli Turks, who inhabit Western Asia and South-eastern Europe; and the Yakuts, who are separated from the main body of the Turki peoples and live in the Siberian tundra.

In Europe three great races are recognized—Nordic, Alpine, and Mediterranean. All three have a wavy type of hair. The typical Nordic man is tall, with fair hair, long head, oval face, narrow, prominent nose, and blue eyes. The Alpine man is of medium height and thick-set build, with light chestnut or brown hair, fairly broad head, round face, and grey eyes. The Mediterranean man is of medium height and slender build, with dark brown or black hair, long head, oval face, rather broad nose, and dark eyes. This wavy-haired group of races stretches without a break from Southern Europe to Assam, in North-east India. The Semites (Jews and Arabs) and Kurds of the 'Land of the Five Seas,' the Iranians, Afghans, Baluchis, and probably Dravidians, are in the main of Mediterranean type, but the Armenians are of Alpine stock. In the Caucasus region the lofty mountains form a very difficult barrier, but their fertile valleys have a complex jumble of peoples. In India the earliest inhabitants of importance were the Dravidians, short in stature, with dark skin, broad nose, flat face, long skull, and curling hair, who displaced still more primitive people who were shorter in stature and darker in skin. These primitive peoples, possibly of negroid stock, have been driven into the dense jungles of the Dekkan and the Ganges delta region, and the greater part of India is inhabited by an important branch of the Mediterranean race. The original Ainus of Japan are the sole Asiatic representatives of some European type.

Indo-China, Malaya, and the East Indies form another region of very complex peoples. There are great variations in race, language, and types of society. The earliest and most primitive peoples are mostly of negrito stock, of short stature, black-skinned, with broad heads and

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woolly hair. The purest negroes are those of the Andaman Islands, one of the most primitive peoples in the world. Others of the early inhabitants are the Indonesians, a taller race, with wavy hair and lighter skins. The chief element in the mixed stocks of this region is Mongoloid, owing to the ease with which peoples from Central Asia could penetrate southward by the valleys of the Irrawaddy, Salween, and Mekong, and the Malay peninsula has given them access to the East Indies. The peoples of Cambodia, Annam, Burma, and Java are of this mixed, largely Mongoloid type, while the Malays of the Malay peninsula, Sumatra, and Borneo represent the last great Mongoloid invasion, about the twelfth century. Further complexity of peoples arises from the modern influx of Tamils, a Dravidian people of Southern India, into Burma and Malaya and of Chinese into Malaya.

There are many different religions in Asia, but only five are of very great importance, and they all originated in Asia—Christianity, which has reached almost all parts of Asia, but in no single area has very great numbers; Islam, or Mohammedanism, which includes vast numbers of peoples, especially in India and Western Asia; Buddhism, which is chiefly professed in Ceylon, Tibet, China, Burma, and Japan; Hinduism, or Brahmanism, which is confined to India; and Confucianism, the chief religion of the Chinese.

EXERCISES

1. Describe and explain the distribution of deserts in Asia.
2. Compare in extent and economic development the forest regions of Asia and North America.
3. Discuss the importance of animals as beasts of burden in Asia.

CHAPTER V

THE RUSSIAN LANDS OF ASIA

THE Russian lands of Asia have a population of over 13,000,000 in a total area of 6,294,000 square miles, of which Siberia alone measures 4,832,000 square miles, and therefore are not much smaller than the continent of South America, or one and three-quarter times the size of Europe, or over one-third of all Asia. Asiatic Russia has a coast-line of 10,000 miles on the Arctic Ocean and 8400 miles on the Pacific.

The Russian people have developed an amazing power of adapting themselves to all kinds of conditions and activities. They have proved equally successful as hunters, traders, fishermen, farmers, and colonists. The story of Russian expansion to the Pacific shores is perhaps even more remarkable than that of the United States and Canada across the North American continent in the nineteenth century.

Tea was first imported into Russia from China in 1638. The Cossacks controlled the Yenisei basin by 1630; by 1643 they had reached Lake Baikal, and by 1656 the Pacific coast. A long struggle with Manchuria for supremacy in North-eastern Asia ended in 1858, when Russia dominated the Amur valley and made the river the boundary between Russian and Chinese territories. As early as the late sixteenth century both prisoners and colonists were sent into Siberia to establish farming colonies round the fortresses, to work in the mines, and to guard the fur-trade routes. Until the Russo-Japanese War (1904-5) Siberia was regarded as an inaccessible land suitable for convicts and political prisoners. But after that war it was realized that Siberia had great possibilities for development, and settlers were encouraged

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to occupy the vacant lands. During the present century the population of Siberia has doubled. About 70 per cent. of the inhabitants are Russians, and their chief settlements lie near the Trans-Siberian Railway and its branches.

For centuries the opening up of Siberia has been retarded by poor communications. The Ob, Yenisei, and Lena, with their east- or west-flowing tributaries, form an extensive system of navigable waterways, but unfortunately the main streams flow to the Arctic Ocean, which is ice-free for only three or four months each year, and extensive floods are common when the upper courses thaw while the lower courses are still frozen. Wherever possible, however, the rivers have been used by the Russians in their penetration of Siberia.

The Ob is one of the greatest rivers in the world. When not frozen the main stream and its tributaries are navigable to the foot of the mountains, and the total length of their navigation is over 17,000 miles. Both the Ob and the Yenisei flow into the Kara Sea. The Yenisei is the best means of access to Siberia from the Atlantic, and is being increasingly used for the export of lumber through the new river-port of Igarka.¹ The main stream provides good navigation for 1850 miles. The Lena is navigable for steamers for about 2800 miles, and it has several navigable tributaries. Unfortunately the Lena mouth is very inaccessible, and the lower course is little used. The Amur and its tributaries are the most important navigable waterways of Eastern Siberia, the Usuri valley providing an easy route to Vladivostok.

An ancient caravan route, the Trakt, runs from Perm, a town on the Kama tributary of the Volga, through the Ural Mountains, to Sverdlovsk (formerly called Ekaterinburg), then on, through Tobolsk, Omsk, Tomsk, and Krasnoyarsk,² to Irkutsk, near the shores of Lake Baikal.

¹ See p 81.

² The name implies a city situated in ravines covered by coniferous trees with red trunks

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The route continues beyond Lake Baikal, through Chita, to the Shilka tributary of the Amur, thus gaining access to the Pacific coast, but is of little importance nowadays.

By the Treaty of Peking (1860) Russia acquired the territories lying north of Manchukuo, and it was realized that better communications with Russia were necessary if these lands were to be effectively controlled. Eventually it was decided to construct a railway, the longest ever made, right through the continent to the Pacific coast. Work began in 1891, and the railway, including the important branch across Manchukuo, was finished by 1905. From Chelyabinsk, on the frontier of European Russia, the line to Vladivostok measures 3902 miles; to Lenin-grad, *via* Samara and Moscow, adds another 1980 miles to the route. After a three days' journey from Moscow Chelyabinsk is reached, and the line strikes eastward over the fertile steppe-lands, crossing the Tobol, Ishim, and Irtysh rivers. A railway bridge 2400 feet long crosses the Irtysh to Omsk. Four hundred miles beyond Omsk the railway crosses the river Ob to Novo-Sibirsk,¹ and a branch-line runs north to Tomsk, fifty-six miles away. The next important city is Krasnoyarsk, on the Yenisei, situated 500 miles from the Ob and in the coniferous forest belt. The Yenisei is crossed by a fine steel bridge 3000 feet long, and the line trends south-east, with steeper gradients through the forested mountains, towards Irkutsk, on the Angara tributary of the Yenisei, forty miles from Lake Baikal.² This lake, 400 miles long and 18 to 66 miles wide, equals Belgium in area, and is the deepest fresh-water lake in the world. Seals disport themselves in its sparkingly clear, cold waters, and bears roam along its wooded shores. Gold is dredged from the shallower parts of the lake. Precipitous granite cliffs at the southern end of the lake made railway construction

¹ Formerly Novo-Nikolayevsk.

² The Russians call Lake Baikal 'the White-haired,' because of the mists which usually hang about it.

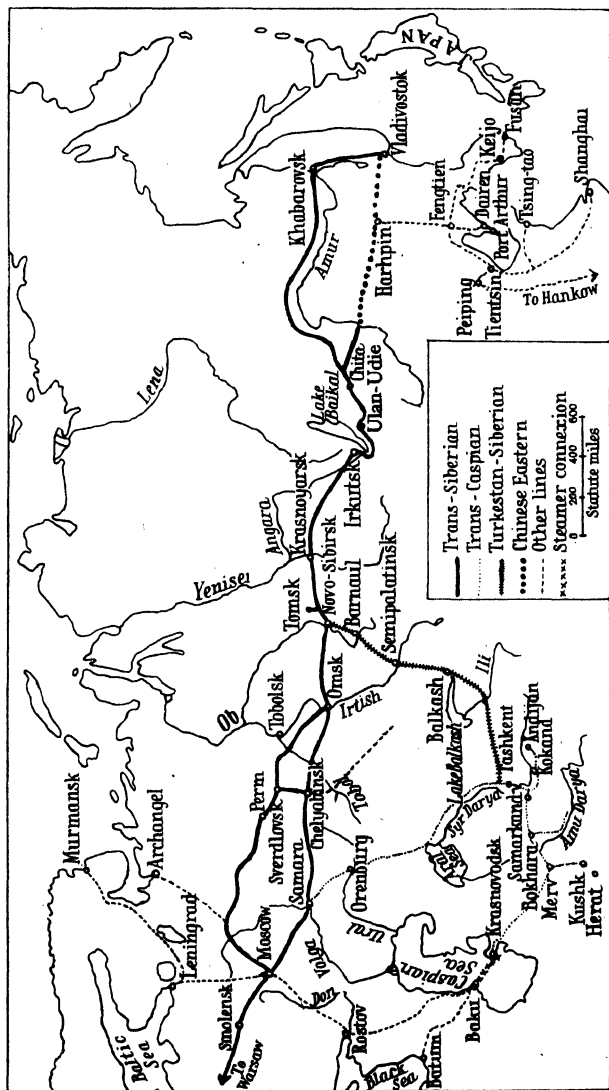


FIG. 14. RAILWAYS OF RUSSIAN ASIA

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so difficult that at first trains were ferried across the lake on an ice-breaking steamer, the *Baikal*, built at Newcastle-upon-Tyne. But in 1904 a road was blasted out of the cliffs, and in the following year the continuous line was completed round the southern end of the lake. Like all the Trans-Siberian Railway west of Chita, the line round

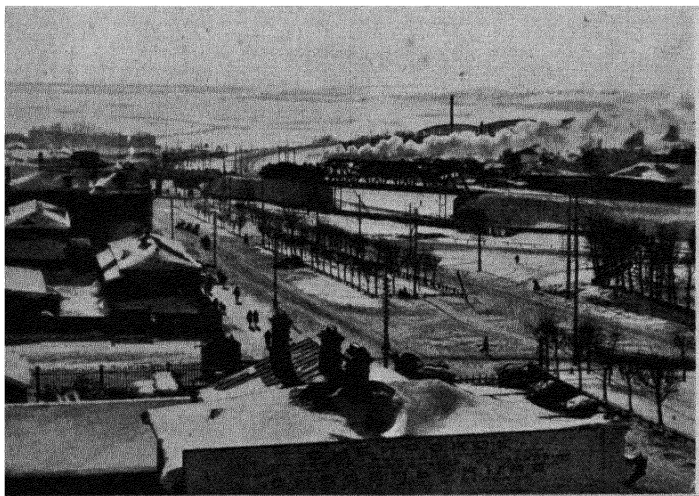


FIG. 15. NOVO-SIBIRSK

In the western suburb of Novo-Sibirsk there is a junction of two railways, the Altai Railway and the Trans-Siberian Railway. The Altai Railway is seen in the foreground. Behind, partly hidden by the smoke of the train, is the railway bridge of the Trans-Siberian Railway, leading across the ice-bound Ob.

Photo Planet News, Ltd.

the southern end of Lake Baikal is double-tracked. The old line passes through about forty short tunnels in the cliffs, but the new line runs between the water and the cliffs. Beyond Lake Baikal the railway reaches Chita, climbs to over 3000 feet to cross the Yablonoi Mountains, and then goes south-east across the boundary into Manchukuo. Another climb takes the line through a high pass in the Khingan Mountains, over the Manchukuo

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plain to Harhpin (Harbin), on the Sungari tributary of the Amur.¹ At Harhpin the line divides, one branch going direct to Vladivostok, the other running south-west, through Fengtien (Mukden), to Port Arthur. A longer alternative route, from a point east of Chita, passes entirely through Russian territory, using the valleys of the Shilka and the Amur to Khabarovsk, thence reaching Vladivostok by the valley of a northward-flowing tributary, the Usuri.

The journey of 5475 miles, the longest direct railway line in the world, from Moscow to Vladivostok takes about ten days. The military importance of the route is far surpassed by its value in the development of Siberia. A broad belt of cultivated land, with growing population, is dependent on the Trans-Siberian Railway, with which the settlements are linked by branch-lines and river-steamers. Tea and silk from China and furs from the forest belt are brought direct to Europe, which in return sends machinery and manufactured goods. The trade in farm products—grain, butter, meat, and hides—is certain to increase with the organized development of Siberia.

The revolution of November 1917 affected not only Russia, but also the Asiatic territories formerly ruled by the Tsar. The natural resources, large factories; and transport systems have become the property of the peoples. The Russian lands have been divided up into a number of independent socialist republics, which are, however, joined together in one united State, the Union of Socialist Soviet Republics, for the control of matters affecting them all—questions of peace and war, treaties, financial and legal systems, internal and international trade, education, public health, development of natural resources, etc. The Union of Socialist Soviet Republics (U.S.S.R.) comprises the Ukraine Socialist Soviet Republic and the

¹ This route through Manchukuo to Vladivostok is the Chinese Eastern Railway, recently sold to the Japanese. See p. 360.

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White Russian Socialist Soviet Republic in Europe; the Transcaucasian Socialist Federal Soviet Republic (the federated republics of Georgia, Azerbaijan, and Armenia), the Turkoman Socialist Soviet Republic, the Uzbek Socialist Soviet Republic, and the Tajik Socialist Soviet Republic in Asia; together with the greatest territories of all, the Russian Socialist Federal Soviet Republic, which in Asia includes the Siberian Territories, the Omsk Province, the Krasnoyarsk Territory, the Far Eastern Territory, the Kazak Republic, the Kirghiz Republic, the Yakutsk Republic, and many smaller territories.

The complete Union of Socialist Soviet Republics covers nearly one-sixth of all the lands of the world. Its total population is over 165,000,000, belonging to 183 nationalities and speaking 149 languages and dialects. In such huge territories transport is not only dependent upon rivers, roads, and railways, but important air routes are being developed. In addition to the network of air-lines in European Russia, there are organized journeys by three-engined air-liners from Moscow due east across Siberia to Vladivostok and south-east across Kazakistan to Tashkent, whence other planes soar over the lofty Hindu Kush to Kabul.

The Soviet lands of Asia include the north-western lowlands of the continent, with part of the central highlands on the south and east, and may be divided into the following regions—(1) The Tundra, (2) the Siberian Forests, (3) the Steppes, (4) the Desert and Semi-desert Lands of Turan, (5) the Caucasian Region. The climate and natural vegetation of these regions have already been described, and some account must now be given of their human geography.

THE TUNDRA

Marco Polo referred to the tundra as “a land inaccessible, because of its quagmires and ice.” The description

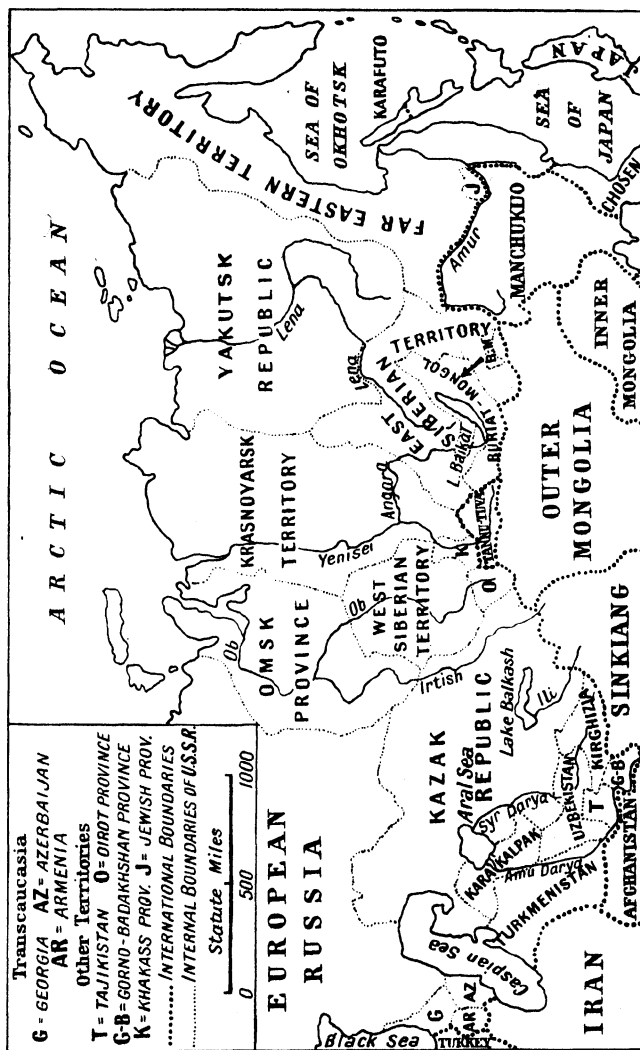


FIG. 16. POLITICAL DIVISIONS OF RUSSIAN ASIA
 Based on an official map appearing in the *Moscow News* of January 17, 1935.
 The latest administrative divisions are shown.

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is only a half-truth, as will be seen from the account already given in Chapter IV. The chief peoples of the Asiatic tundra are the Samoyeds and Ostyaks in the west; the Yakuts, Tungus, and Chukchee in the east. They reached the tundra from the forests and steppes to the south by way of the river valleys. As the ground is frozen hard throughout most of the year and the summer is so brief cultivation of the ground is impossible. The natural resources support only a scanty population. The mainstay of human life is the reindeer, upon which the relative comfort and well-being of the family depend. The reindeer is admirably adapted to its surroundings. It feeds upon a lichen known as reindeer 'moss,' to obtain which in winter it will scrape away the snow with its forefeet. Its widespread toes enable it to travel in safety over rocks, snow, ice, morass, and bog. The reindeer is a useful beast of burden, and its milk is an important food, although ten reindeer supply only the same quantity as one cow; but as reindeer milk is thick and rich it can be diluted with water. Surplus reindeer may be killed to provide meat, skins for clothing and tents, horns and bones for knives and tools, tendons and sinews for thread. The reindeer are only partly domesticated; they are allowed to roam about in search of moss, and the family follows them from one feeding-ground to another. The brief summer is a period of intense activity; an abundant supply of fish is available in the rivers and sea, and surplus fish are cleaned and dried by the women for winter food; wild reindeer and other animals may be shot with rifle or bow and arrow; women and children may collect berries from the stunted bushes. In summer the people must obviously lead a nomadic or wandering life, staying only a short time in one place. Their home is the choom, a tent of birch-bark or skins covering a framework of poles (a valuable possession in a treeless land), with a hole in the top to allow smoke to escape from the fire made on a stone slab in the middle of the tent. The floor may be

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covered with dry moss. Reindeer-skins for seats and beds, a cooking-pot slung above the fire, and a few wooden utensils form the chief contents of this simple home. The tents can be quickly erected or struck by the women and, together with all the family possessions, carried by the reindeer to the new pastures.

With the approach of winter the tundra-dwellers usually migrate southward to the margins of the coniferous forests, where a more settled life is possible. The choom is often used as a winter home, made warmer by a thicker covering of skins, and has the advantage of being easily moved when a fresh supply of fodder for the reindeer is necessary. Sometimes a primitive hut of earth, turf, and wood, built over a dug-out hollow, may be constructed. While the women stay at home to tend the reindeer and the children, and to make clothing and tent-coverings from furs and skins, the men journey into the forests to hunt fur-bearing and other animals, such as the stag and elk. Furs may be bartered with traders in exchange for tea, tobacco, alcoholic drink, rifles, ammunition, knives, and other commodities. Travelling is easier on the frozen snows and streams of winter than over the swampy ground of summer. The sledge, drawn by dogs or reindeer, is commonly used, and the Samoyeds use ski.

Both sexes dress in loosely shaped garments of skin, neatly sewn with threads of reindeer sinews. Fur gloves sewn to the sleeves, hood attached to the dress, and fur boots, warm and watertight, complete the usual clothing. Babies are generally wrapped in furs and laced into a cradle—like that of the Red Indian papoose—so that they may be laid down in safety or carried on the mother's back. Sometimes the mother may carry the baby in her hood, thus leaving her hands free for other occupations.

Life in the tundra is hard and precarious. Progress is difficult, and life goes on in the same unchanging round. Despite their hardships the tundra peoples are normally kind to their children and hospitable to strangers; but in

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times of scarcity those who through age or illness are unable to share in the vital struggle for existence may be abandoned without pity and left to perish miserably. This may seem wicked, but the continued presence of such helpless people might endanger the survival of the rest of the family.

On the Arctic shores of Asia dwell the Eskimo, to the number of about 1600. They resemble in every respect the Eskimo of Greenland and Northern Canada, the sea providing them with all their needs.¹

THE SIBERIAN FORESTS

A traveller in Siberia writes as follows :

The great forest which lies to the north of the Trans-Siberian Railway, along the valleys of the Ob, Yenisei, and Lena rivers, has been explored. Fur-traders, lumbermen, hunters, fishermen, and prospectors for gold and graphite have penetrated until there is little left blank upon the map ; but these immigrants have almost always used the rivers as corridors for passage, and even then have seldom left records of their wanderings. It is not surprising that this should be so, for the taiga has relatively little to offer the scientific traveller or sportsman that they cannot obtain in greater measure elsewhere. Transport is difficult, the climate is extreme, the scenery is monotonous, and the flora and fauna are meagre in comparison with those of forests and savannas in other parts of the world. Hence, the taiga has been overlooked, and its exploration has been at the instance of trade rather than of science. . . . Seen from one of the great rivers, the taiga is like the sea in its immensity and monotony.²

As in the Canadian coniferous forests, there are very few species of trees, in striking contrast with the extravagant

¹ For a full account of the Eskimo see *North America*, by Edward V. Lane, in this series.

² M. D. Haviland, *Forest, Steppe, and Tundra* (Cambridge University Press).

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variety of the tropical forests. The hard climate, with only four or five months during which water is available, makes tree-growth very slow indeed, and most of the trees in the north are rather slender, rarely exceeding fifteen inches in diameter. Elsewhere there are many fine trees of great girth. The taiga is easily the greatest store of coniferous timber in the world, but, as compared with Canada, it is difficult of access. Timber will rarely pay for lengthy rail-transport, and the Siberian rivers lead to the Arctic Ocean. Just before the Great War, however, certain great trading companies had a regular fleet of nearly eighty steamers on the Siberian rivers, and carried huge quantities of lumber, furs, butter, and other products to the ocean, thus proving the practicability of the Arctic route, which may be compared with the new Hudson Bay route from Churchill, in Canada. The timber of the taiga will become more important as the more accessible supplies of other lands are depleted. At present furs are the most valuable production of the taiga. The animals develop thicker coats in winter, and some, such as the ermine and Arctic fox, turn white. Travel is easy over the frozen snow, so trappers penetrate the forests on snowshoes to trap the ermine, silver fox, sable, and other fur-bearing animals. The mineral wealth of the forestlands is now being developed.

In 1930 Soviet workers laid the foundations of Igarka (15,000), a port on the Yenisei river, 550 miles from the Arctic Ocean, and within the Arctic Circle. During the brief summer Russian, British, Dutch, and German vessels reach the port, escorted by Soviet ice-breakers. Igarka now has saw-mills (kept working in winter by an artificial lake of warm water), an electric-power station, a wireless station, and a mill for grinding graphite. Igarka is the outlet for a vast region abounding in timber, minerals, and furs.

The taiga covers the greater part of Siberia, but in the Amur valley there are mixed forests, changing to

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deciduous forests farther south. The population of the forest-lands is very scanty, and is distributed in scattered settlements along the great waterways, on which are found the only towns of any size.

Vladivostok (190,000), the largest Russian port on the Pacific coast, is a convenient outlet for Eastern Siberia, Northern Manchukuo, and North-eastern Mongolia. It has a good deep-water harbour, which is kept open to shipping in winter by a well-organized ice-breaking service. The port has extensive warehouses, engineering and repair yards, two dry docks, and one floating dock. Vladivostok is the capital and only large town of the Far Eastern Territory, of which the bleak forested peninsula of Kamchatka constitutes 40 per cent. of the total area.

The scanty population of Kamchatka depends mainly on fishing and hunting, agriculture being almost impossible, owing to the unfavourable climate. In the rest of the Far Eastern Territory the chief natural resources are the forests, with their timber and fur-bearing animals, coastal fisheries, minerals, and agriculture.¹ All these resources are being developed, and there are also wood-working and flour-milling industries. Indeed, this region accounts for nearly half the mining and manufacturing output of Siberia, and as its railway and river transport systems are fairly good it should have a great future. Blagovyeshchensk ² (63,500), a gold-smelting and flour-milling centre, and Khabarovsk are the chief river-ports on the Amur, in the heart of one of the best timber regions. Verkhoyansk, in the far north-east, is chiefly remarkable for recording the lowest January temperatures on earth.

Yakutsk (99,000), the chief town of the Lena valley, stands on the left bank of the river, here sixteen miles wide, and is built on flat alluvial soil, always frozen hard, except for a depth of three or four feet that thaws in

¹ Even vineyards are flourishing in the Amur valley.

² *I.e.*, 'Annunciation'

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summer, so forming a solid foundation. Yakutsk was formerly noted as a convict settlement, but it is now growing in importance as the capital of the Yakutsk Soviet Republic (total population, 308,000) and the chief centre for the fur trade and the gold-mining industry of the Lena valley. The severe climate and absence of railways hamper development, and there are only 700 miles of roads; but an air service from Yakutsk to Irkutsk is increasingly used for transporting gold and furs. The Yakutsk Republic is an expanse ten times the size of the British Isles, bounded on the north by the Arctic Ocean. The north consists of tundra and the south of forests. The natural resources are minerals (gold, coal, iron, salt, silver-lead, and bituminous shales), timber, fur-bearing animals, fisheries, and mammoth ivory. During the last few years organized developments have begun, including the extraction of gold by hydraulic jets and enormous dredgers. Fur-trapping is carefully regulated; the chief pelts are red fox, ermine, sable, and mink. Agriculture and dairy-farming are being developed on modern lines. There are no railways.

To the south of the Yakutsk Republic lies the small Buriat-Mongol Republic, with a population of 575,000. It is a region of forested highlands and valleys, where the chief occupation is the breeding of sheep, goats, horses, and pigs. The nomads are rapidly becoming settled agriculturists, however, cultivating the steppes with the most modern machines, and living in wooden houses, instead of yurts. Leather and glass are the leading manufactures. The capital is Ulan-Udie, formerly called Verkhne-Udinsk (28,000), situated a little over half a mile from the Trans-Siberian Railway and about fifty miles east of Lake Baikal. It is a town devoid of vegetation and hemmed in by mountains, but nevertheless a busy trade centre for leather, wool, and cattle, with a great fair in winter. A motor-road runs to Ulan Bator Hoto (Urga), the capital of Mongolia.

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THE STEPPES

The steppe-lands of Central Asia correspond to the prairies of North America, where the Red Indians lived mainly by hunting the herds of wild bison. But since the dawn of history the peoples of the Asiatic grasslands have lived a nomadic life dependent upon domesticated animals. It is customary to call the steppe peoples Kirghiz, but they call themselves Kazaks, which means 'Wandering Horsemen.' Their wealth consists entirely in their flocks and herds of animals. The horse is by far the most important animal, and the steppe seems its natural home, where it attains its greatest development, especially of speed, and where it is most useful. The Kirghiz horse is small and sturdy, with short legs, ugly head, long tail, and shaggy mane. It has remarkable strength and powers of endurance. The dry climate is favourable to the Kirghiz horse, which can bear great extremes of heat and cold, and often travels as much as sixty miles without food. The mares give a copious supply of highly nourishing milk, which is a most important food on the steppe-lands. As a rule the mares' milk is mixed with tepid water and cows' milk and allowed to ferment, forming kumis, a kind of milk-wine. Some of the milk is made into butter or cheese. The horse is the chief means of transport. All steppe-dwellers are renowned for their horsemanship: they learn to ride from early childhood. Without their swift horses they would be unable to control the movements of their flocks and herds or to ride ahead to choose and prepare the next camping-ground. Horses are so valuable that they are rarely killed for food, even though horse-flesh is regarded as the best meat of all. The relative wealth of a tribe depends on the number of its horses, which are used as exchangeable wealth. A rich tribe may own 5000 or 6000 horses.

Next in importance to horses are sheep and goats. The sheep are accustomed to travelling long distances. They

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store surplus fat in bags under the tail, so that they may be sustained if deprived of food for any length of time. The well-fed sheep may develop such a heavy, fatty tail that the shepherd has to fasten it to a little trolley to help the sheep to walk about easily. Cattle are much less important, for they require comparatively rich meadowlands, but the two-humped Bactrian camel, a native of the Asiatic steppes, is very important, especially in the drier regions. The camel is wonderfully adapted to an environment where pastures and water are liable to fail. By storing fat in its humps and water in its stomach it can travel for several days without eating or drinking. Its large feet enable it to run quickly over loose sand. It has padded knees, so that it can kneel for loading without injury. The camel is a most useful beast of burden; it supplies milk for food and hair for making warm cloth and ropes.

On the steppes material for dyeing is about the only thing made from plants. The animals satisfy all other needs. Felt is made from sheep's wool; the ewes give milk; mutton is the staple flesh food; mutton-fat rendered down makes a black tallow for winter light; a sheepskin is used as a fur coat in winter. Goats' flesh is regarded as a great delicacy. Horse-hair is plaited into reins and cords. Leather is prepared from the skins of all the animals.

The Kirghiz lead a nomadic life, but their wanderings are in no sense haphazard. Every journey is carefully planned and organized, in order to provide pasture for the animals. The presence of springs and wells is an important factor in determining the routes taken. It is usual to send the horses out first to eat the long grass; then, as they move on, the oxen and camels follow. Finally the sheep are allowed to nibble the short grass that remains.

The nomadic life begins in April or May, when the winter snows have melted and the fresh grasses are rapidly growing. After the mounted herdsmen have gone off with

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the animals the women strike the tents, pack everything on the backs of camels and oxen, mount their horses, and follow. About the middle of the day the animals are milked into leather bottles. As evening approaches the women pitch the tents, the animals are again milked, and the evening meal is prepared. If the pastures are poor it



FIG. 17. THE OLD AND THE NEW IN RUSSIAN ASIA

A nomad's yurt, unchanged in type for centuries, is contrasted with the modern petrol-driven tractor, the symbol of progress in Central Asia.

Photo Planet News, Ltd.

may be necessary to move camp day by day, but abundant pastures may permit a stay of several days, or even weeks. The advancing heat of summer begins to scorch up the grasses, and swarms of insects plague both man and beast. So the journeys are continued to the higher lands, where the climate is cooler, the pastures more abundant, and insects less numerous. As winter approaches the tribes return to the lowlands and head for their winter quarters, usually of a permanent character. The wanderings of

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the Kirghiz may extend over vast areas. Some who spend the winter near the Aral Sea drive their flocks to the summer pastures round Omsk, over eight hundred miles to the north.

The Kirghiz tent, or yurt, is shaped like a beehive, perhaps twenty to twenty-five feet in diameter and ten to twelve feet high. Its walls are sections of wooden trellis bound together with thongs of hide, and the roof is of willow-rods. This framework is covered outside with felts thick enough to withstand the rain, snow, and biting winds of winter, while the inside is lined with rush mats. The tent-floor is covered with felt or old carpets, save for the bare space in the centre on which the cooking-fire is made. The fire is started with a few sticks of saxaul,¹ but as wood is so scarce the chief fuel is dried animal dung.

For clothes the men wear a shirt of white linen, baggy trousers of linen or coarse brown camel-cloth tied with a cord round the middle, no socks, but long boots of soft leather, heel-less, so that they thrust easily into their overshoes, which are religiously taken off on entering the yurt. Over all they wear a kind of long-sleeved dressing-gown called a khalat. . . . The women are clothed in much the same way, the very poor, like their menfolk, in shirt and trousers, with the difference that they wear a short, sleeveless sarafan of velvet in place of a khalat.²

Carpets, rugs, and cushions are the chief furnishings of the tents, although sometimes there may be wooden beds, carved and gaudily painted, and carved wooden boxes, similarly decorated, containing the family treasures. Bags are made of leather; skins are used for holding milk or water. All these things will stand rough usage, and are easily carried by the camels.

The winter quarters are fixed near a good supply of water and pasture, and hay is collected for the herds. Dried animal dung is stored up for fires. The winter

¹ See p. 62.

² Ralph Fox, *People of the Steppes* (Constable).

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dwelling may be the yurt, but sometimes a hut of plaited willows or reeds is erected. Roughly made stables are provided for the animals.

The Kirghiz tribes are self-contained. They produce everything they need, although additional luxuries may sometimes be secured by barter in the towns. Each tribe consists of a group of large families, and as the size of the herds depends upon the number of shepherds available, the larger the family the more wealthy it will be. The family is patriarchal in character. All property belongs to the family as a whole, and not to individuals. The head of the family, the patriarch, has living with him all his sons and their families, as well as his unmarried daughters. The only loss from the family occurs when a daughter marries, and so departs for her husband's tribe. Naturally the father desires to have sons rather than daughters. The patriarch exercises supreme power as father, magistrate, and even priest. He nominates his successor, usually a brother, and so an old man. Conditions of life on the steppe are unchanging from generation to generation, so that long experience of the organized wanderings is the valued possession of the old men, and explains their commanding position in the tribal life. The people are proud of their family traditions, and greatly reverence their ancestors. The Kirghiz were not converted to Islam until the fifteenth century, after the death of their great ruler Tamerlane, and to this day Mohammedanism has not gained a really strong hold upon them, especially in Turkestan. The great majority are illiterate, yet clever in their own particular activities; they are stubborn when once convinced; upright and honest, except when bargaining. In general they are remarkably hospitable, very quiet, easygoing, and greatly averse to changes of any kind. They are perfectly happy and content to live the same unchanging life, finding delight in the increase of their flocks. A feeling of complete helplessness in face of great disasters—storms,

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prolonged droughts, disease, or severe winters—has naturally made the Kirghiz fatalists.

Should it be necessary to make a very long journey for purposes of trade or to find a new home owing to a period of great drought the tribe is organized as a caravan under a supreme leader, this time a young man. As invaders of other lands the pastoral peoples have in the past made remarkable conquests. Their strength depended a great deal on their superb horsemanship, which enabled them to make sudden attacks, and then retire before their opponents could organize effective resistance. As the whole people with their flocks and herds formed the invading army they had all their needs supplied without difficulty, and had no lines of communication to maintain. Should the caravan have to leave the grasslands, however, these advantages were lost, for the animals could not be maintained. Attila, the leader of the Huns, carried his conquests as far west as the steppes of Hungary, but when he tried to dominate Western Europe he failed completely. Another weakness of the caravan lay in the tendency for the families to separate and carry on their usual life as soon as the initial conquest had been achieved. Thus, the empires founded by pastoral leaders, such as Attila, Tamerlane, and Kublai Khan, have not been very enduring, although the history of China, India, and Europe has been greatly dominated by the invasions of steppe peoples. The Magyars of Hungary and the people of Bulgaria are descendants of conquering steppe-dwellers.

The most northerly part of the steppe, where it merges into the taiga, is in general fine agricultural land, with fertile black soils and rainfall sufficient to support grain crops and pastures for dairy cattle. Since the middle of the nineteenth century Russian agricultural colonists have penetrated this region, settlement on a large scale following on the completion of the western section of the Trans-Siberian Railway in 1894. Huge quantities of wheat, rye, oats, millet, and root crops are grown, leaving

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a big margin for export. Cattle-rearing is very important, and the manufacture of butter has become a great industry. There are also large numbers of horses and sheep, including the astrakhan sheep, which supplies valuable fleeces for export. Prolonged droughts and untimely frosts are the only natural drawbacks. Copper and iron from the Southern Ural Mountains and fish from the Ural river are other products of this region. Inadequate transport and primitive commercial facilities alone have hindered the development of a far greater export trade.

The Russian colonists have occupied most of the fertile land that has access to the railway. Consequently the nomadic Kirghiz have been pushed farther south, where the brown soils are less fertile and the rainfall scanty and uncertain. The Kirghiz have been subject to Russia since 1734, but they were naturally hostile to the Russian settlers who had taken their lands. Following the Russo-Japanese War there began throughout Central Asia a growing demand for some form of self-government. During the fighting and famines of the Great War and the Russian revolutionary period the Kirghiz suffered dreadfully, but since the establishment of the U.S.S.R. their aspirations have been largely fulfilled by the formation of the self-governing Kazak Republic. With the guidance of the Soviet Government the majority of the Kirghiz have already forsaken their nomadic life and become settled agriculturists, living in villages.

Between European Russia, on the west, the Yakutsk Republic and the Far Eastern Territory, on the east, the Kazak Republic, on the south, and the Arctic Ocean, on the north, there lies a vast extent of Siberia that is now divided into the Omsk Province, the West Siberian Territory, the Krasnoyarsk Territory, and the East Siberian Territory. The greater part of this huge area is coniferous forest, the chief resources being furs and timber. But the most important section is the northern

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fertile steppe. Wheat and dairy produce are the chief farm products exported. The mineral wealth of the region is remarkably great, but development is only beginning. The coal resources are among the greatest known. The Kuznetsk basin alone is estimated to contain about twice the resources of Great Britain. There are other great deposits awaiting exploitation, notably in the Irkutsk region. The Kuznetsk basin also contains immense deposits of iron ore, and elsewhere there are great stores of copper and other metals.

Perhaps the most striking development of recent years has been the construction of Magnitogorsk (230,000), an iron-manufacturing centre based upon great reserves of rich ore in the Ural Mountains. The annual output of pig-iron will probably equal that of Great Britain.

The chief towns are on or within reach of the Trans-Siberian Railway. Trade is still largely carried on by fairs, of which every town of any importance has one each year. Novo-Sibirsk (278,000), the capital of the West Siberian Territory, is on the main line, midway between Omsk and Krasnoyarsk, at the point where it crosses the river Ob. It is a collecting centre for farm products and minerals and a rising industrial city. Omsk (227,000), on the Irtysh, is the most important town in the Siberian steppe. The Irtysh and its tributaries and the Trans-Siberian Railway concentrate upon Omsk the trade of an extensive region of fertile black soils. Wheat, butter, and cattle from the farms; furs, fish, and timber from the northern forests and rivers; wool, hides, and skins from the herds of the pastoral Kirghiz—these are the chief commodities brought to Omsk. The 'capital of the steppe' occupies a site similar to that of Winnipeg, and has great possibilities of development in connexion with grain production, dairy-farming, forest products, and mineral industries. There are in the vicinity valuable deposits of copper and coal. Such products as tea and silk reach Omsk from China, and to the south-east an

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ancient caravan route leads through the Zungarian Gate to Mongolia and the Far East.

Farther down the Irtysh Tobolsk is built on a high rock in the midst of a marshy region, at the point where the ancient caravan road, the Trakt, reaches the junction of two important waterways, the Tobol and Irtysh. The railway was carried farther south through Omsk to avoid the marshes. Tobolsk is a great fur market. Tiumen is a similar fur-trading centre to the south-west of Tobolsk, with the advantage of standing on the railway.

Tomsk (128,000), like Omsk, is an important wheat market commanding good waterways, but it lies over fifty miles north of the main railway, to which it is joined by a branch-line. Tomsk is also a centre for gold and coal, and has manufacturing industries, such as distilling and flour-milling.

Near Novo-Sibirsk an important branch railway runs south through Barnaul to Semipalatinsk. Barnaul (109,000) is the rising centre of a fertile farming region, within easy reach of the mineral wealth (coal, gold, silver) of the Altai Mountains. Krasnoyarsk (101,500), the bridge point on the Yenisei, is yet another growing centre of the steppe. It ships grain and timber down the Yenisei for the Kara Sea, and has an important fur trade. There is a steamer service to Yeniseisk, a centre for fish (salmon and sturgeon), gold, and furs, 200 miles farther north.

The capital of the East Siberian Territory is Irkutsk (158,500), a fine city built on the banks of the Angara, near the southern end of Lake Baikal and at the junction of important routes—by the railway westward through the steppe to Russia, eastward to Vladivostok, Manchukuo, and China, north-east to the Lena valley, and south-east to the Amur valley. Irkutsk has a growing trade in minerals (coal, iron, gold, silver), furs, and tea. Chita (82,000), on the river Chita, at the limit of navigation of the Amur system, is the centre of the mining industry of

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Transbaikalia, as the region beyond the lake is called, and has salmon canneries on the riverside.

RUSSIAN TURKESTAN, OR TURAN

The Russians expanded in Asia not only eastward to the Pacific, but they also added to their empire great territories in Turkestan, the region lying south of the Kirghiz steppe. The khans, or rulers of Turkestan, were subdued one by one. The conquest of Tashkent was accomplished by 1865, and was followed in three years by that of Samarkand. Bokhara was taken in 1868; in 1873 Khiva and the Amu Darya district were conquered; and in 1875 Ferghana and Kokand made their submission. By 1884 the Turkomans had been completely subdued, and Russia had extended her dominions to the very borders of Persia and Afghanistan and to the Pamirs. Beyond lies India, and there were British fears that Russia had dreams of making further conquests in that direction. The boundaries of British India were extended in the north-west beyond the Himalayas and Sulaiman Mountains in order to control the vital frontier-passes. But possible friction with Russia has been avoided by the maintenance of Afghanistan as an independent State, to which was added a narrow strip of territory south of the Pamirs, to divide the Russian and Indian frontiers.

The Russians had made themselves masters of one of the most romantic lands in the world, through which passes the 'Golden Road to Samarkand,' the caravan trail that was ancient even when Marco Polo traversed it on his way to distant Peking. To-day the railway follows the same route—the modern interpretation of the Magic Carpet of *The Arabian Nights' Entertainments*.

The Caspian and Aral Seas are remnants of an ancient more extensive sea. Both have diminished in size, leaving salt plains. The climate of the whole region has undoubtedly become drier within historic times, and much of it

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is absolute desert. The Caspian Sea is 170,000 square miles in area, and has a maximum depth of 3000 feet. The surface and much of the shore-lands are below sea-level. From the eastern shores of the Caspian the desert extends for 1200 miles eastward to the mountain belt, and on the south reaches the mountains that fringe the plateau of Irania. The Aral Sea, about half as salty as the Great Salt Lake of Utah, is rather smaller than Scotland, but old shores give some indication of its former greater extent, and it is for the most part very shallow, the greatest depth, about 220 feet, being near the rocky western shore. The eastern shores have many sand-dunes. Ships and boats ply on the sea, which contains many fish, including sturgeon. On the small islands in the sea fruit, vegetables, and tobacco are grown.

In the higher land to the east of the Aral depression there is another brackish lake, Lake Balkash, beyond which there are two important breaks in the mountain barrier, between the Altai Mountains and the Tian-shan. These gaps are the Zungarian Gate, one of the most important natural routes in the world, for through them have passed practically all the hordes of Mongols that have overrun Western Asia and penetrated at different periods into Europe.

The mountains bordering Turan shut out rain-bearing winds, but themselves receive sufficient rain and snow to feed many rivers, the majority of which, however, die away in the desert sands. Water is fairly plentiful in the upper valleys, where the rivers rush down from the glaciers and snowfields of the Hindu Kush, Pamirs, and Tian-shan. The melting snows of early summer greatly increase the volume of water. The rivers bring down huge quantities of alluvium, which is deposited in the lower valleys or built up into alluvial fans where the current slackens on reaching the plains. The most important rivers are the Amu Darya and Syr Darya, which have sufficient water to reach the Aral Sea. In some

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respects they resemble the Nile: they diminish in volume in crossing the desert, and the summer rains and melted snows of the mountains make them rise and flood their banks.

Only a small proportion of Turan supports plants of any kind, and much of this is poor scrub and pasture, merely sufficient for a few weeks' grazing for the animals

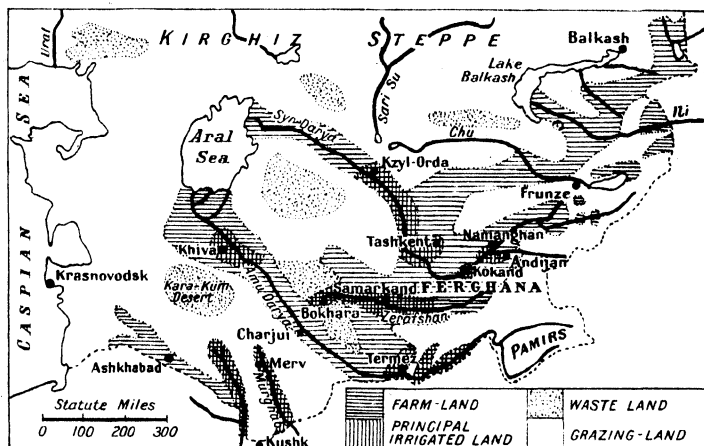


FIG. 18. PRODUCTIVE AREAS OF RUSSIAN TURKESTAN

of the nomadic Kirghiz. A settled life is possible only where irrigation can be practised, and the chief regions of cultivation and settlement are therefore the alluvial fans and the river valleys, which form long ribbon oases of great fertility. Cotton, wheat, maize, rice, tobacco, vegetables, sesame (for its oil-seeds), and fruits (grapes, figs, peaches, apricots, melons, mulberries, and pomegranates) are the principal crops. Cereals and fresh and dried fruits are important foods, for milk and meat are scarce. Silkworms are fed on mulberry-leaves, and silk is an important manufacture, especially in Bokhara and Ferghana. The latter is also the chief centre for cotton,

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the leading commercial crop of Turan. Practically all the cotton of Soviet Central Asia is now grown on collective farms, and production has increased so greatly that by 1930, for the first time in history, the U.S.S.R. was independent of imported cotton. Some cotton is manufactured in Turan, and large quantities are sent to mills in Russia. Cotton-seeds are crushed to obtain oil, used in cooking and for lamps, and waste pulp from the seeds is fed to camels.

Some of the oldest caravan routes in the world link together the oasis-cities of Turan, and camels are still of great importance in the transport of cotton and other produce. But the Trans-Caspian Railway, built by the Russian conquerors in the first place for military purposes, is the great trade artery of Western Turkestan. Two important lines meet at Baku, on the western shores of the Caspian Sea: one comes along the southern side of the Caucasus Mountains from Batum, the port at the eastern end of the Black Sea; the other comes from Moscow, and follows the foothills on the northern side of the Caucasus. From Baku ferry-steamers cross to Krasnovodsk, on the opposite shore of the Caspian. From Krasnovodsk the Trans-Caspian Railway runs along the edge of the highlands to the oasis-city of Merv. Hedges of saxaul have been planted to protect the railway-track from drifting sands. From Merv the main line runs north-east to Bokhara, crossing the Amu Darya by a fine bridge nearly two miles long. Following the valley of the Zerafshan river, the railway passes through Samarkand, and then strikes north-east to Tashkent, in the upper Syr valley. Tashkent is joined to the Trans-Siberian Railway at Samara by an important line which follows the Syr valley and crosses the Kirghiz steppe to Orenburg. There are two other important branch-lines: one runs from Merv southward for about two hundred miles to Kushk, near Herat, in Afghanistan; the other leaves the main line between Samarkand and Tashkent and follows the

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upper Syr valley, through the well-watered, highly fertile 'black-earth' cotton-growing lands of Ferghana, to Kokand and Andijan.

A line from Semipalatinsk, on the Irtysh river, joins the Trans-Siberian Railway at Novo-Sibirsk. The U.S.S.R. has continued the route south from Semipalatinsk, through Balkash, at the eastern end of Lake Balkash, and then, skirting the foot of the mountains, the line runs westward to join the Trans-Caspian Railway near Tashkent. The Turkestan-Siberian (or Turk.-Sib.) Railway, as this new route to Tashkent is called, was opened on May Day 1930.

The U.S.S.R. has developed good postal and telegraph services throughout Turan, and an air-line has been established, the chief services being in Uzbekistan. Serious efforts have been made to educate the people and improve their conditions of life. The status of women has been greatly enhanced, and only a few old women still wear the ancient horsehair veil. Not many years ago religious fanatics would have killed any woman who appeared in the streets without such a veil.

Russian Turkestan is larger than England, France, Germany, Switzerland, and Italy combined. Its population of 10,000,000 includes a variety of peoples of Turko-Mongol origin—Kazaks, Uzbeks, Sarts, Turkomans, Tajiks, Kara Kirghiz, and Kara Kalpaks. The Kazaks are very widespread, especially in the north, where in some areas they form as many as 80 per cent. of the population. There are about 2,000,000 Uzbeks, living in Khiva, Samarkand, and Bokhara. The Uzbeks were formerly nomads like the Kirghiz, but now they are nearly all living a settled life of agriculture. The Turkomans live in the south, between the Caspian Sea and the Amu Darya. The Tajiks and Kara Kirghiz occupy the mountainous regions on the east. All these peoples are or have been nomads; their common religion is Islam, although their attachment to the Koran is rather weak. Their

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nomadism has made them very clannish, opposed to control by a central Government, and unwilling to co-operate with one another. During the Great War the Turkish effort to unite the peoples of Turan was a failure, but the U.S.S.R. has wisely encouraged the formation of separate States. The northern section of Turan is part of the great Kazak Republic, of which the main area is the Kirghiz steppe. The Turkoman Republic, the Uzbek Republic, the Tajik Republic, the Kara Kalpak Republic, the Kirghiz Republic (of the Kara Kirghiz), and the Gorno-Badakhshan Province are the other political units of modern Turan.

The autonomous *Kazak Republic* is larger than Argentina, and has a population of 6,979,000. The capital is Kzyl-Orda, standing on the Syr Darya. Semipalatinsk (120,000) is the largest town.

Turkmenistan, or the *Turkoman Republic*, has an area of 189,603 square miles and a population of 1,270,000, of whom 72 per cent. are Turkomans and 10 per cent. Uzbeks. The country is mainly an extensive plain including the Kara-Kum Desert. Kara-Kum means 'Black Sand,' but the sands are really grey, and the plain is by no means a desolate region, being widely covered with small bushes and shrubs. In spring there are also grasses and wild flowers, notably tulips. The people are mainly engaged in agriculture, of necessity dependent upon irrigation, the chief commercial crop being cotton. Wool, Astrakhan fur, carpets, and horses are also noteworthy. The country has fairly rich mineral resources, the chief minerals being ozokerite (a waxy substance used for making candles), petroleum, sulphates, common salt, and sulphur. The Trans-Caspian Railway runs through the southern part of Turkmenistan, and the chief towns lie on or near it, and have telegraphic connexion with the rest of the U.S.S.R. Camel transport is still of great importance.

Krasnovodsk, a small port on the Caspian Sea, is the western terminus of the Trans-Caspian Railway. As has

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been said, steamboats convey passengers and goods across the Caspian to Baku, the journey taking eighteen hours. Ashkhabad (Polterask) (34,000), the capital of Turkmenistan, is a beautiful town, with wide, well-paved, tree-bordered streets, flanked by streams of running water. It is the centre of a highly productive region, crops of fruits, especially grapes of fine quality, cotton, and cereals being grown by irrigation from a stream that brings abundant water from the adjacent mountains. Ashkhabad is on the Trans-Caspian Railway, about half-way between Krasnovodsk and Merv, and has motor communication with Meshed, in Iran.

The only other town of note is Merv, an ancient centre of caravan routes on the Murghab river. The district is a large and fertile oasis, intensively cultivated. The old city, with its high walls and narrow streets, is in marked contrast with the modern Merv, built twenty-five miles away on the railway, whence the branch-line follows the Murghab valley to Kushk, in Afghanistan.

Uzbekistan, or the *Uzbek Republic*, includes the western plains of Bokhara, a large part of the Samarkand region, the southern part of the Syr Darya, and Western Fergana. Before the arrival of their Russian conquerors the Uzbeks were the ruling race of Central Asia, having governed the native states that were founded in the fifteenth century on the ruins of Tamerlane's empire. Uzbekistan is smaller than Great Britain, and its population of 5,044,000 is predominantly of Uzbeks. They are an agricultural people with finely developed crafts and household arts. Only one-fourth of the population lives in towns, the rest being devoted mainly to farming, based on artificial irrigation. The country is very hilly, and has many streams from the lofty mountains. Oil and coal are the chief minerals. Fruits, wool, and silk are important products. The chief commodity is cotton, which is manufactured in many spinning factories. In 1930, as we have

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Soviet Union became independent of imported cotton, mainly through the increased production of Uzbekistan, which in 1932 and 1933 sowed over 1,000,000 acres of cotton, much of it being Egyptian. The area under irrigation has been greatly extended, and, as elsewhere in Soviet Asia, developments are largely due to great collective farms, employing petrol tractors and the most modern agricultural machines for ploughing, sowing, cotton-picking, and other operations.

Uzbekistan includes some of the oldest and most picturesque towns in the world, where all the brilliant colour and variety of the Orient are in striking contrast with the most modern developments of railways, hydro-electric power-stations, silk-mills, and mechanized farming.

Tashkent (491,000), the capital of the Uzbek Republic, is the largest city and the commercial and cultural centre of all the Central Asiatic Soviet republics. Tashkent is built in the most fertile part of the Syr valley, but far enough from the river to escape floods. The Russian quarter of the city has broad streets lined with poplars and fine buildings; the old town has its narrow, squalid streets and its colourful bazaars and mosques, but is being slowly reconstructed. Irrigated orchards and vineyards surround the city with a belt of green.

From the historical point of view Samarkand (155,000)

is one of the most interesting cities in the world. It was founded by Alexander the Great over twenty-two centuries ago and in the fourteenth century was the capital of the Timurids. The city has been frequently destroyed and rebuilt, but a number of fine buildings remain from the days of Tamerlane, notably his tomb. The Registan, or central square of the city, is flanked on three sides by magnificent minarets, mosques and colleges. All day the bazaars are filled with people, clad in brilliant robes and headgear, come from many parts of Central Asia to buy silk carpets, skins, fine cloths, metal-work,

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precious stones, etc. Great heaps of melons, grapes, peaches, cherries, and other fruits are displayed; the silversmiths hammer busily in their little open-air shops; laden camels with tinkling bells are continually passing along. The city is intersected by a network of irrigation



FIG. 19. PREPARING TO CLEAN THE CANALS IN UZBEKISTAN

Every year there is being organized all over Uzbekistan the *Khoshar* (social work) of cleaning the *airks* (canals). The photograph shows Dekkhans (peasants) at a meeting before going to work. Such meetings are typical also of the State collective farms, where the workers commonly gather together as a preliminary to making their co-operative effort on the land.

Photo Planet News, Ltd.

canals, bringing the life-giving water of the Zerafshan. Modern Samarkand is an industrial centre, with two electric power-stations and several silk-mills.

Bokhara, like Samarkand, is an ancient walled city, entered by narrow gates. Bokhara is quaintly attractive, with its narrow streets bordered by mosques and flat-roofed houses of sun-dried mud, ornamented and roofed

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of the old regions of Bokhara and Turkestan in which the population consists mainly of Tajiks, whose language closely resembles Iranian. Tajikistan is a little smaller than England and Wales, but its population of 1,333,000 is only about that of Glasgow. The country is very mountainous, and includes part of the Pamirs. Before the formation of the republic the only means of communication were camel-tracks, but a railway (124 miles long) has been completed between Termez, on the Amu, and Stalinabad, the capital. Over three thousand miles of roadway suitable for motor traffic have already been made, a steamship line runs on the Amu river, and there are air routes from Stalinabad.

The population is devoted mainly to farming and cattle-breeding. Irrigation is being developed, with cotton as the staple crop, mainly grown on collective farms. Gold, oil, coal, copper, lead, and zinc are produced, and the present primitive methods will shortly be superseded by modern scientific operations. Indeed, the progress of this once primitive land has been remarkable. Between 1928 and 1932 industrial output increased six-fold, and agricultural output was more than doubled. A huge silk-mill employs 1500 women. Every effort is being made to overcome the illiteracy of the people and to develop the natural resources of the country.

Kirghizia, or the *Kirghiz Autonomous Republic*, is another very mountainous region, lying to the east of the Tajik Republic, and traversed by the valley of the upper Syr Darya. The inhabitants are the Kara Kirghiz, who came from Western Mongolia in the eighth and ninth centuries, and ultimately settled in the Pamirs, Tian-shan, and lower slopes of the Hindu Kush. Modern developments are only beginning, but the country will progress on lines similar to those of Tajikistan. The capital is Frunze.

Tannu-Tuva is an independent republic under Soviet protection lying north-west of Mongolia. The majority of the 65,000 people are Tuvinians (a Turki people), but

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there are 12,000 Russians. The pastures support many animals, and the chief exports are hair, hides, and wool. There is a Soviet steamer service on the Yenisei. The capital of Tannu-Tuva is Krasny (10,000).

THE CAUCASIAN REGION

The Caucasus Mountains are generally regarded as part of the boundary between Europe and Asia. They rise like a mighty wall across the land bridge that links the two continents between the Black and Caspian Seas. Seven peaks exceed in height any of the Alps, and the Caucasus abound in steep precipices, deep valleys, mighty glaciers and snowfields, and towering, snow-clad peaks. From the earliest times peoples have crossed and recrossed the Caucasus in their migrations—Arabs, Persians, Mongols, Huns, Turks, and Crusaders. From time to time small groups of these migrants settled in the fertile valleys, and their numbers were increased by refugees from many different parts of Europe and Asia. Consequently the Caucasus have a most amazing mixture of peoples, languages, and cultures. The region has had a no less complicated history. For a long time Russia and Turkey disputed possession of the Caucasus region, but by 1881 Russia had conquered Transcaucasia—that is, the land beyond the Caucasus. At the end of the Great War Transcaucasia was in a turmoil. During part of 1919 Britain sought to bring order into the region, but soon abandoned the task. Attempts to establish separate states have encountered grave difficulties, owing to the great diversity of peoples and their animosity towards one another. There are five main groups—the Georgians, a settled people dependent mainly on farming; the Armenians, who are farmers and herdsmen; the Tartars, living in rather primitive fashion as herdsmen; the Kurds, warlike, semi-nomadic herdsmen; and the Turks. Tartars, Kurds, and Turks are Mohammedans,

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and in the past they have massacred the Christian Armenians.

Transcaucasia is now established as the Transcaucasian Socialist Federated Soviet Republic, consisting of three republics—Georgia, Azerbaijan, and Armenia. In a region of such intense racial complexity ordered development would be well-nigh impossible without the control of some strong power, and the U.S.S.R. should be capable of exercising that control.

Georgia, about two-thirds the size of Scotland and much more mountainous, occupies the western half of Transcaucasia, between the Caucasus and the edge of the Armenian plateau. Its population is over 3,100,000, of whom nearly 70 per cent. are Georgians. The remainder are of many nations, the chief being Armenians, Tartars, and Russians.

Numerous fertile valleys and an excellent climate for cereals and such sub-tropical products as tobacco, cotton, dried fruits, and raw silk have made farming profitable. Land-drainage and the construction of irrigation-works have increased the importance of agriculture. There are rich forest-lands containing a great variety of temperate and sub-tropical timbers. One would expect mineral wealth in such a mountainous region, and Georgia has large deposits of coal, copper, oil, and manganese. The manganese deposits are the greatest in the world, and are of incalculable value, for manganese is an important constituent of modern tough steels. Georgia is naturally rich in water-power, and has the two most powerful hydro-electric stations in Transcaucasia. A number of other stations are under construction. Electric light and power are supplied even to remote villages.

The railways include part of the very important trunk line from Batum, through Tiflis, to Baku and a line from Tiflis which branches to Erzurum, in Anatolia, and Tabriz, in Iran. No railways cross the mighty Caucasus, but engineering skill has overcome the formidable difficulties

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in three great roads—the Georgian Military Highway, the Ossetian Military Highway, and the Sukhum Military Highway—all three crossing into South Russia. The Georgian Military Highway winds through 135 miles of magnificent mountain scenery, passing tiny villages clinging to the slopes of majestic mountains, whence roaring torrents hurl themselves to the valleys below. The road enables one to travel by motor-car in twelve hours from Tiflis to Ordzhonikidze (Vladikavkaz), the Russian ‘Gateway to the Caucasus.’ The highest point that is reached is less than 8000 feet, in the Dariel, or Cross Mountain, Pass.

Tiflis (406,000), imposingly situated on the steep cliffs of the upper valley of the river Kura, is the capital of Georgia and of all Transcaucasia. It is one of the oldest cities in Georgia, with narrow, crooked lanes, flat roofs, and pyramid-topped churches. There is also a modern European section with broad boulevards, fine buildings, including hotels and cinemas, and important new textile mills. Tiflis is clearly an important route centre.

Batum, the great oil-port at the eastern end of the Black Sea, is connected by a pipe-line over 500 miles long with Baku, on the Caspian. Tank-steamers convey the oil to various parts of Europe. Poti, another port just north of Batum, exports nearly half the world’s supply of manganese, as well as oil. Kutais is the chief centre of the coal and manganese areas.

Azerbaijan, the republic which forms the eastern part of Transcaucasia, is inhabited mainly by Tartars, who are completely different in race and speech from either Georgians or Armenians. The area of the country is equal to that of Ireland, but its population is only 2,891,000. The heart of the country is the Kura river valley, which widens out towards the Caspian Sea in a fairly extensive plain. Agriculture is the mainstay, thanks to fertile soils and temperate climate, the chief products being wheat, barley, maize, cotton, grapes, vegetables, tobacco, and

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silk. Cattle-breeding is important on the mountain pastures. Nearly 70 per cent. of the population live in country districts, and in the towns industry and commerce are largely in the hands of Russians. By far the most important industry is that of oil, the supplies of petroleum being among the richest in the world. There have been great developments in recent years, the output of oil

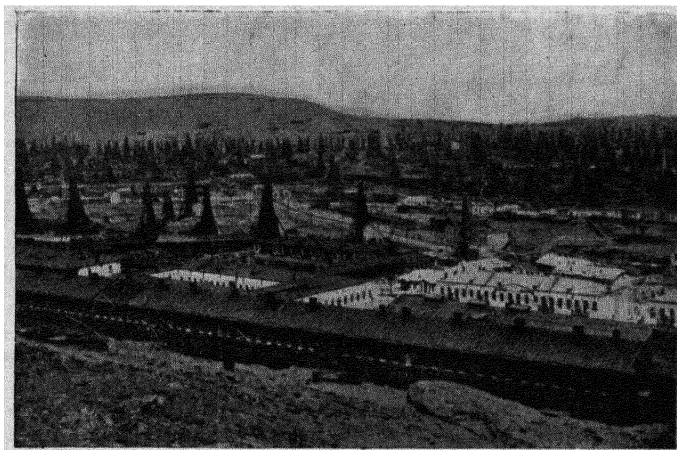


FIG. 21. THE BAKU OILFIELD

Each of the wooden funnels covers a bore-hole, up which the crude oil flows or is pumped. Notice the absence of trees and shrubs.

Photo E.N.A.

rising from 7,560,000 tons in 1927-28 to 19,020,000 tons in 1933-34. The great centre of the industry is Baku (710,000), the capital and only large town of the country. The city was founded by the Arabs in the fifth century, and still possesses buildings of historic interest. Most of the city, however, is of modern type. As the oil is destined largely for use in Western Europe it is sent by pipe-line to Batum, on the Black Sea. From Baku Soviet ships, including oil-tankers, ply northward to Astrakhan, at the mouth of the Volga, and steamers also run southward

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to Enzeli, an Iranian port. All the oilfields have been electrified, and modern settlements of American type have been constructed for the workers. In recent years the industry has made great strides, and the Russian output, with nearly 13 per cent. of the total world production, ranks second to that of the United States.

The mining of copper and salt, the manufacture of textiles, and the fisheries of the Caspian Sea are other industries of note.

Armenia. Centuries ago Armenia extended as far as the Caucasus, Mesopotamia, and Asia Minor. But the Armenian nation lost its independence when the Turks conquered Asia Minor in the thirteenth and fourteenth centuries. The Armenians, who are Christians, have been persistently persecuted by the Turks. In 1894-95 between 100,000 and 200,000 Armenians were slaughtered; a similar massacre occurred in 1909; and during the Great War more than 800,000 Armenians were assassinated, burned alive, or starved by the Turks. It is difficult to establish a State of Armenia, as in most parts of former Armenian territory the Armenians themselves are in a minority, the bulk of the people being Kurds, Turks, and Syrians. The greater part of the old Armenia is included in Turkey, but there is a small Armenian Socialist Soviet Republic, proclaimed in 1921.

The Armenian Republic, with an area of 11,945 square miles, consists of the north-eastern section of the Armenian plateau, a region of fertile valleys separated by bleak, barren mountains. Of the population of 1,109,000 about 85 per cent. are Armenians, engaged almost exclusively in agriculture. Cotton, silk, wines, and Mediterranean fruits are the leading products from the valleys; animals are pastured on the Alpine meadows; but there are no forests. The Armenian Soviet Government has constructed a number of irrigation canals, thereby providing the peasants with new arable land equal in area to the county of Essex. The Armenians are displaying remark-

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able energy in developing their country. Ten new hydro-electric power-stations have been erected, cotton and wine production are increasing, and large spinning- and weaving-mills are under construction. More than half the peasant farms have been collectivized.

Erivan (112,000), the capital of Soviet Armenia and the only large town, is an ancient city built within view of Mount Ararat and containing the historic remains of previous conquerors—Iranians, Arabs, Turks. Erivan is linked by railway with Tiflis (Georgia) and Tabriz (Iran).

EXERCISES

1. Draw a sketch-map showing the Trans-Siberian Railway, and estimate its importance in the development of Russian lands in Asia.
2. Compare the life of steppe-land nomads with that of the North American Indians prior to the period of white settlement.
3. Give an account of the distribution and development of minerals in the Asiatic lands of the U.S.S.R.
4. Under selected headings—for example, position, relief, climate, natural resources, transport—compare and contrast Siberia with Canada.
5. Describe recent developments in Russian Turkestan.
6. Draw sketch-maps to show the position and importance of (a) Baku, (b) Bokhara, (c) Omsk, (d) Vladivostok.
7. State the advantages and disadvantages of the Siberian rivers as trade routes.

CHAPTER VI

THE NEAR EAST

THAT portion of Asia extending from the Mediterranean Sea to India, approximately equal in area to Europe, is generally referred to as the Near East, and as it is bordered by the Mediterranean, Black, Caspian, Arabian, and Red Seas it is often called the 'Land of the Five Seas.' This vast region consists of the plateaux of Asia Minor, Armenia, Irania, and Arabia and the plain of Mesopotamia.

TURKEY

The modern Turks are descended from two chief branches—the Seljuk Turks, originally from Mongolia, and the Ottoman Turks, from the Altai Mountains and the plateaux of Central Asia, who supplanted the Seljuk Turks at the end of the thirteenth century. The Turks later began a series of conquests which made them masters of Syria, Egypt, and the holy places of Mecca and Medina, Sultan Selim I thus becoming caliph, or head of the Moslem Church. The Turks invaded Europe, the greatest extent of their empire including Hungary, South Russia, and the whole of the Balkans, except Montenegro. But from the late sixteenth century Turkish power began to decline, the loss of Hungary being followed by that of the Crimea and the northern shores of the Black Sea. In the early nineteenth century the Greeks and Serbs began a series of risings that by 1913 had liberated almost the whole of the Balkans from the Turks.

From 1876 to 1909 Sultan Abdul-Hamid II resisted all attempts to bring Turkey into closer contact with European civilization, but sought to make himself leader of Pan-Islamism, the religious movement by which he hoped

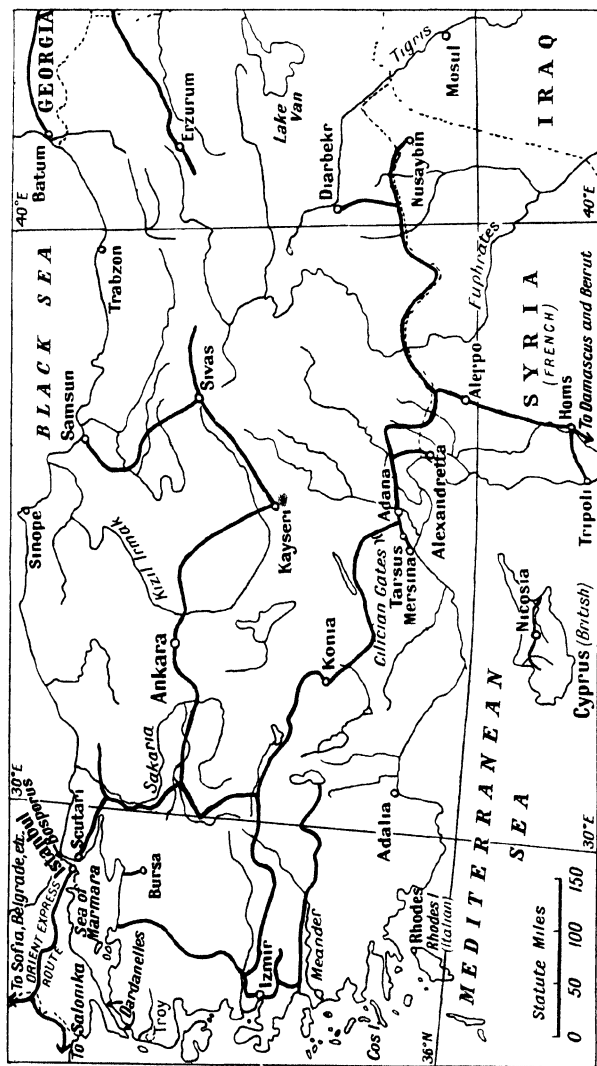


FIG. 22. RIVERS, RAILWAYS, AND CHIEF TOWNS OF TURKEY

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to gain control of the Mohammedan peoples of India, North and East Africa, Transcaucasia, and Russian Turk-
estan. Meanwhile there had been a growing movement for reform in Turkey, and in 1909 the Young Turks, a group of patriotic reformers who hoped to revive and modernize their country, overthrew the ruling party, imprisoned the Sultan, put his brother Mohammed V in his place, and established an elective Parliament and a free Press. But they also carried on the idea of Pan-Islamism, and in order to arouse national enthusiasm the old Mongol leaders (Attila, Genghis Khan, Tamerlane, etc.) were glorified, Greek and Armenian traders and shopkeepers were persecuted, subject races were oppressed, and Christians were massacred. In 1909, for example, over 30,000 Christians were slain at Adana, in Cilicia. The persecution of Greeks, Serbs, and Bulgars in Macedonia brought about the Balkan War of 1912, as a result of which Turkey lost all her European territory except the Constantinople area.

From the time of Catherine the Great Russia tended to dominate Turkey, and but for the opposition of Great Britain (jealous of Russian expansion in the direction of India) it is probable that the Turks would long ago have been driven from Europe. Under Kaiser Wilhelm II Germany began to take an interest in Turkey. The initial aim was to employ German capital, establish German settlers, and secure markets for German goods in the more fertile parts of Turkey. The ultimate objective was to build up a huge combination of states, stretching from Germany, through Austria-Hungary, the Balkans, and Turkey, to the Indian Ocean. A scheme was put in hand for connecting Berlin by railway with Bagdad and the Persian Gulf, and nearly all the line as far as Bagdad had been completed by 1914. A branch-line from Aleppo to Medina and Mecca was also under construction. The Berlin-Bagdad Railway would be able to bring tobacco, fruits, cotton, wool, and other raw materials to Germany

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and carry in return German manufactured goods. By thus developing the resources of the Near East Germany would have brought increased prosperity not only to herself and to Turkey, but to other nations. Unfortunately the German plans, especially the railways, were regarded as a menace to British interests in India and Egypt, which include the vital trade-link of the Suez Canal. The success of Germany's schemes depended upon the consent of the Balkan States, and Serbia, supported by Russia, proved the chief stumbling-block. The Great War, for which the chief European Powers had so long prepared, and which they regarded as more or less inevitable, began in the Balkans, and Turkey supported Germany. In accordance with the Treaty of Sèvres (1920) Turkey lost the greater part of her pre-War territories, and all that is left to her is Istanbul (Constantinople) and the adjacent district in Europe, the plateau of Asia Minor (Anatolia), and part of the Armenian plateau. Palestine, Syria, Mesopotamia, and other lands whose peoples had long been oppressed by the Turks have now been given the opportunity of developing along their own individual lines.

Before the Great War Turkey was often called the 'Sick Man of Europe.' Since the War the 'Sick Man' has made a fine recovery, and is growing in strength. In April 1920 a new Government was set up at Ankara (Angora), although the Sultan and his supporters still occupied Istanbul. On November 1, 1922, the Turkish Grand National Assembly, meeting in Ankara, declared that the office of sultan had ceased to exist. Shortly afterwards the Sultan secretly left Istanbul, and on October 29, 1923, Ghazi¹ Mustafa Kemal Pasha, one of the most brilliant national leaders ever known, was elected first President of the Turkish Republic, an office which he still holds. In March 1924 the Grand National Assembly decided to abolish the office of caliph, thus severing the

¹ *Ghazi* ('Victorious') is the title given to him by the Turkish people. In 1935 he has been called *Attaturk* ('Father of Turks').

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The European sultan political and religious government. The sultan has proved an enlightened and vigorous leader, and under his guidance many revolutionary reforms have been effected. He can be ruthless to his enemies, but his great ambition is to Westernize his country. As a soldier his greatest achievement was to drive out the Greek army from Anatolia in 1923. In the same year his statesmanship secured the Treaty of Lausanne—an agreement much more favourable to Turkey than the Treaty of Sèvres. All powers of government are vested in the Grand National Assembly; both men and women are allowed to vote, and both sexes are eligible for election to the Assembly. The country is divided into sixty-three *vilayets*,¹ each possessing its own local council. Islam is no longer the State religion, and there is religious toleration. The wearing of the tarbush, the 'flower-pot' hat that distinguished the Mohammedan Turk, has been forbidden, and ordinary European dress is encouraged. The veil, so long the symbol of woman's subjection, has likewise been abolished. The educational system has been vastly improved, and in order to secure closer contact with Europe Latin characters have completely replaced the Arabic characters. The European numeral system, the metric system of weights and measures, and the Gregorian calendar² have been adopted. Codes of law based upon the best in Europe have been introduced.

The republic of Turkey, with an area of 294,416 square miles, is as large as Norway and Sweden combined. The general census of 1927 (the first in Turkish history) showed the population to be 13,648,000. Of the foreign population the chief elements were Greeks (26,400), Italians (11,600), Bulgars (7400), and Russians (6200).

¹ *Vilayet* = 'district.' The name 'Blighty,' affectionately applied to Britain during the Great War, is said to be a corruption of *vilayet*.

² This change was effected in 1926, the year 1342 of the Hegira calendar of the Mohammedans.

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The Greeks, who formerly were scattered as merchants and traders throughout the coasts of Asia Minor, are now almost entirely in and near Istanbul. Classified according to religion the population of Turkey includes 13,270,000 Moslems, 110,000 Greek Orthodox Christians, 82,000 Jews, 77,500 Armenian Christians, 40,000 Roman Catholics, and 31,000 other Christians.

Asia Minor, or Anatolia, is a plateau rising from about 2500 feet in the west to 6000 feet in the east, flanked by higher ranges of fold mountains. The Taurus, in the south, rise abruptly from the coast to over 11,000 feet, except in the east, where they bend north behind the plain of Cilicia; the Anti-Taurus form the south-eastern buttress; and the Pontic, or Pontine,¹ Range, in the north, falls so steeply to the Black Sea that there are no good harbours. The plateau is an undulating country of broad valleys, with conical mountains, often of volcanic origin, in the east. Earthquakes sometimes occur, especially in the west, and there are many hot springs, but no active volcanoes. The fold ranges of Asia Minor were once continuous with those of Greece, but extensive subsidence in the west has produced not only the Ægean Sea, but also a greatly indented coast-line, with good harbours and numerous islands. From the north and south access to the plateau is difficult, but approach from the west is comparatively easy, owing to the broken character of the mountain-rim and the broad valleys of long rivers that flow from the higher lands of the east, where their valleys are narrow and deep. The river Meander, which enters the Ægean Sea south of Izmir (Smyrna), has such a winding course that the word 'meander' is used to indicate winding. A few rivers turn north to reach the Black Sea, the longest being the Kizil Irmak from the Armenian plateau. In the central and southern parts of the plateau there is a large area of inland drainage, where the rivers enter shallow salt lakes.

¹ So called from Pontus, the Latin name for the Black Sea.

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East of Asia Minor lies the still loftier plateau of Armenia and Kurdistan, a wild, rugged region where lofty, barren mountain-folds separate fertile vales and rolling, grassy plains. The highest peak is the snow-capped Mount Ararat (16,925 feet), the traditional resting-place of Noah's ark. Mount Ararat, together with the smaller peak of Little Ararat, rises abruptly from a stretch of level plateau. South of Ararat lies the extensive Lake Van, which has no outlet save evaporation, and is consequently salt. The Armenian plateau is the source of a number of rivers, the chief being the Euphrates and Tigris, flowing to the Persian Gulf, and the Araxes, which enters the Caspian Sea.

In Asia Minor extreme continental climatic conditions are typical of all but the coastal margins. In the interior winters are cold and dry, with strong north-east winds and occasional snowstorms, brought by the bitterly cold rear winds of cyclones passing eastward. On the higher parts of the plateau the snowfall is heavy. Following the light spring rains the summer is hot and dry. Ankara, for example, has a mean annual rainfall of only ten inches. Much of the plateau is in consequence poor steppe, dotted with salt lakes and marshes, with a few fertile plains which can be irrigated by streams from the surrounding mountains. In these favoured regions, such as the valley of the Kizil Irmak, wheat, olives, grapes, figs, oranges, maize, cotton, tobacco, beans, lentils, liquorice roots, linseed, and mulberries (for silkworms) are grown. The plateau is the home of the famous Angora goats, which supply the long, silky mohair used for making cloth, carpets, and rugs. The pastures of the plateau and mountains support some 11,000,000 sheep, 9,000,000 goats, 5,100,000 cattle, 955,000 asses, 540,000 buffaloes, 563,000 horses, 88,000 camels, and 46,000 mules. The mineral wealth of the mountains is very little exploited, apart from some silver-, borax-, coal-, and copper-mines, mostly under Government control. Brass and copper are widely used for making household utensils and other

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goods. Chrome ore, zinc, manganese ore, antimony, meerschaum, emery, asphalt, gold, mercury, arsenic, and iron are also known to exist.

Communications on the plateau are difficult and poorly developed. Roads are of primitive type, and much of the traffic is carried by caravans of camels and mules. The chief routes are those from Scutari and Izmir to Aleppo; from Sivas, through Diarbekr, to Mosul, on the Tigris; and from Trabzon (Trebizond), on the Black Sea, through Erzurum, to Tabriz and Teheran, in Iran; while the ancient road-pass of the Cilician Gates between the Taurus and Anti-Taurus Ranges gives access to the plateau of Anatolia from the south. Railways have been constructed across the plateau from Izmir, the main line going through Konia and tunnelling through the Taurus Mountains near the Cilician Gates to Adana and Aleppo, in Syria, with an important branch to join the line from Scutari along the valley of the Sakaria river to Ankara and Kayseri (Cæsaræa). Through Aleppo there is railway connexion with Damascus, Jerusalem, Cairo, and Medina to the south, and with Mosul, Bagdad, and Basra to the south-east. Erzurum has railway connexion with Tiflis and Tabriz.

Ankara (84,000), the Turkish capital, is the chief market and trade centre of the plateau, and is a much more convenient seat of government than Istanbul, which is too much exposed to outside influences. Kayseri (40,000), at the junction of important routes from Mesopotamia and through the Cilician Gates, and Sivas (28,500), in the upper valley of the Kizil Irmak, are two other farming and market centres of Anatolia. Konia (47,500) is the centre of a wheat district and manufactures carpets. Manganese, mercury, and silver-lead are found in the neighbourhood. Erzurum (31,500), standing at a height of over 6000 feet above the sea, is the largest town on the Armenian plateau and the collecting centre for the pastoral produce of the region, which is exported through Trabzon.

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The coastal margins are the most fertile regions of Turkey. The Black Sea coast consists of two distinct regions. The eastern half is partly sheltered from cold northerly winds by the Caucasus Mountains. Trabzon, for example, has temperature conditions like those of Southern France. The mountains receive much cyclonic rain in autumn and winter, and, unlike the Mediterranean coasts, have a considerable rainfall from north-west winds in spring and summer. Consequently the vegetation is much more luxurious than on the Mediterranean coasts. The usual Mediterranean fruits—olives, figs, oranges, etc.—flourish; tobacco is an important crop, especially round Samsun; and there are tea-gardens and woodlands of oak, beech, and fir, with a luxurious undergrowth of flowering shrubs—rhododendrons and azaleas. Trabzon is an ancient port standing on a poor harbour at a point where caravan routes from Mesopotamia, Iran, Armenia, Syria, and Palestine reach the Black Sea.

The western half of the Black Sea coast, between Sinope and the Bosphorus, is more exposed to cold north-east winds in winter; its summer is dry, and its vegetation much less luxuriant than the eastern stretch of coast. The olive does not flourish, but there are extensive woods, and silk production is important near Scutari, as well as near Bursa (Brusa) (62,000), at the foot of Mount Olympus, near the southern shores of the Sea of Marmara.

The western coast of Asia Minor has a typical Mediterranean climate, with hot, droughty summers and mild winters, when the bulk of the rainfall comes. Strong sea-breezes temper the heat of the day on the coast, but in the sheltered valleys farther inland the heat is oppressive and enervating. Fruits, tobacco, silk, and beans are typical products. The mountain-slopes near the sea have been largely cleared, but the valleys are still well wooded. Izmir (154,000), with a good harbour at the head of a

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long gulf, is the largest town and chief port of Anatolia and one of the termini of the Bagdad Railway. Splendid sultana-raisins (dried grapes) and figs from the neighbouring valleys are exported, together with tobacco, carpets, and valonia (the large acorn-cup of a species of oak, used in tanning).

The southern coast of Anatolia, with its slopes facing the sun and sheltered on the north by the mountain-rim of the plateau, has a very warm climate, with hot, dry summers, tempered by remarkably regular daily sea-breezes. The winters are exceptionally mild and normally free from frost. The coastal strip is wonderfully fertile wherever it can be irrigated, and Mediterranean products flourish. The most productive two regions are those of Cilicia, noted for its cotton, and Adalia. This rich coastal belt is in striking contrast with the arid interior plateau immediately beyond the mountains. Adalia has only an open roadstead, but it has a growing trade with Italy, to which it exports the 'macaroni' wheat of the Konia plains. Iron, manganese, and chrome ore are abundant in the locality. Near the Cilician Gates stand Adana (73,000) and Tarsus, which have cotton manufactures dependent on local fibre. Mersina is a small port on an open roadstead to the west of Tarsus.

The chief occupation of Turkey is obviously agriculture, generally of very primitive type, but now being transformed by modern methods, including extensive irrigation. The principal agricultural products have already been mentioned; the most important in export trade are tobacco, fruits (especially raisins, hazel-nuts, and figs), vegetables, and cotton. Eggs and animal products, such as wool and mohair, are also important exports. The chief imports are cotton and cotton goods, wool and woollen goods, metals and machinery, chemicals, dyes, and lubricating oils. Fisheries are important, especially the sponge fisheries of the west coast. Manufactures are relatively unimportant, but considerable progress has

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been made in recent years. The chief articles of manufacture are carpets and rugs and cotton goods. Fig-packing, oil-seed crushing, sugar-refining, and motor-car assembling (by the Ford Company in Istanbul) are minor industries. There are now nearly a hundred electricity undertakings. Turkish trade is carried on mainly with Italy, Germany, France, Great Britain, and the United States. Britain supplies cotton goods and yarns, woollens, iron and steel, machinery, and coal, and receives in return raisins, mohair, figs, nuts, carpets, and tobacco.

Improvements are being effected in road and railway communications. Istanbul is the terminus of the Orient Express route, which has connexion with the chief cities of Europe. The Anatolian Railway connects Scutari with Ankara, Konia, and Sivas, and the Bagdad Railway (owned by a French company) starts from Konia, and during the War was completed as far as Nusaybin. The coastal shipping trade is important, and there are regular air services from Istanbul to Paris, one route being *via* Sofia, Bucharest, Belgrade, Budapest, Vienna, Warsaw, Prague, Nuremberg, and Strasbourg; and to Brindisi, *via* Athens.

An account of Turkey would be incomplete without further reference to Istanbul.

Constantine the Great enlarged the ancient city of Byzantium, and established there in A.D. 330 the capital of the Roman Empire in the East, a position which it occupied until 1453, when it became the capital of the Ottoman Empire. Constantinople, as the city came to be called, has played a great part in history. Its international character is revealed in the diversity of its peoples, of whom Turks, Greeks, Armenians, and Jews are the chief elements. Its position is of such paramount importance that Russia, Britain, France, Germany, and the Balkan States have long had vital interests in the city, and only their mutual animosities have allowed it to remain so long in Turkish hands. In accordance with the Treaty

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of Sèvres the strait leading from the Black Sea to the Mediterranean is to remain unfortified and to be open in peace or war to all shipping.

Istanbul is built at the southern extremity of the Bosphorus, on a hilly promontory jutting out towards the Asiatic shore. To the south lies the Sea of Marmara, and on the north the magnificent harbour of the Golden Horn.



FIG. 23. THE BOSPORUS, ISTANBUL

By courtesy of the Turkish Ambassador

The Bosphorus ('Strait') is nowhere more than three miles across, and at its narrowest is only 2000 feet wide—a gap that might easily be bridged or tunnelled. The city is a natural fortress, difficult to capture by sea or land. Only a short, strongly fortified line is necessary as a land defence. Indeed, for over a thousand years Istanbul resisted in turn the assaults of Avars, Saracens, Bulgars, and Crusaders, and in Turkish hands has remained inviolate.

Istanbul is a beautiful city, with interesting walls and

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gates, palaces, towers, and churches. The Turks have built many fine mosques, besides converting into mosques most of the former Christian churches, notably that of St Sophia, one of the most beautiful buildings in the world. Modern Istanbul includes a number of towns and villages, the most important being Stamboul¹ (246,000), that part of the city built on the promontory; Galata, the main business area, with offices and banks; Pera (295,000), the chief residential quarter of the European communities; and Scutari (124,000), the principal suburb on the Asiatic side. The city is fast losing its Oriental character. New quays and other harbour-works have greatly improved the shipping facilities, and considerable advances have been made in education, water-supply, and sanitation. The climate is healthy but relaxing. Sudden and great temperature changes occur, owing to exposure to winds from north or south.

Istanbul is the natural link between Europe and Asia. Its earliest trade connexions with Inner Asia, India, and the Far East have declined in importance since the opening of the Suez Canal in 1869, but it is still a great gateway for the trade of Southern Russia, Transcaucasia, Iran, Iraq, and Anatolia. The transference of the seat of government to Ankara has naturally affected Istanbul, but the latter is still the chief Turkish port. The entrepôt trade in produce from Asia Minor is particularly valuable; cereals from the grain-lands of the Black Sea shores are a leading export. The import trade in textiles is of even greater value, and there is a flourishing fishing industry. Of shipping entering the port British is easily the most important.

Two great traffic highways cross at Istanbul—the sea route between the Black and Mediterranean Seas and the land route between Europe and Asia. The city is destined to remain one of the key positions in world trade and political development.

¹ From the Greek, meaning 'into the city.'

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CYPRUS

The island of Cyprus, lying only forty miles south of Asia Minor, was in Turkish hands for over three centuries before it was ceded to Britain in 1878. In 1925 the island was given the status of a British colony. Cyprus, with an area of 3584 square miles, is nearly half the size of Wales, and its population of 348,000 is mainly Greek Christians, but includes 64,000 Turkish Moslems.

Cyprus is crossed by two east-west mountain-ridges, divided by a fertile plain. These ridges are part of the Alpine folds of Europe and Asia Minor. The climate and vegetation are typically Mediterranean. During the hot, dry summer the central plain is bare, except where there are permanent streams. Winter is mild, with occasional cold winds, and the rains clothe the island with wild flowers and grasses. Fruits (olives, raisin-grapes, oranges, apricots, carobs,¹ and figs), cereals (wheat, barley, oats), vegetables (potatoes, beans, peas), cotton, and tobacco are the leading crops, largely dependent on irrigation. Sheep and goats are naturally the chief animals, in view of the absence of good pastures. Existing forests are being preserved and other areas planted with trees. Sponge-fishing is fairly important. The leading exports are fruits and vegetables, asbestos, and copper.² The chief imports are manufactured goods (textiles, machinery, etc.) and foodstuffs (especially flour).

Nicosia (24,000), the capital and chief town, lies in the middle of the central plain, on the narrow-gauge railway which crosses the island from west to east.

Cyprus occupies a dominant position in the Eastern Mediterranean—hence the intention of Britain to retain it as a strategic base, despite the desire of a considerable section of the population for union with Greece.

¹ The carob is the black podlike fruit of the algaroba, or locust-tree.

² Copper has been worked from very early times, and has, indeed, given the island its name.

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THE ÆGEAN ISLANDS

Rhodes (542 square miles) and Cos (109 square miles) are the largest of the fourteen Ægean Islands taken from Turkey by Italy in 1912. Both islands lie near the south-west coast of Asia Minor. They are very fertile and intensively cultivated, producing luscious grapes and other fruits, destined mainly for the Egyptian market. The Italians are developing the tourist traffic. The harbour of Rhodes (25,000), the capital city, is busy with the traffic of many sailing-vessels and small steamers.

Arabia and its Borders

To the south of the plateaux of Asia Minor, Armenia, and Irania lies the huge plateau of Arabia, together with the marginal lands of Syria, Palestine, and Iraq. The whole region, inhabited mainly by Arabs, forms the connecting-link between Europe, Asia, and Africa. Within its borders there developed some of the earliest civilizations. It has witnessed the building of great cities—Ur of the Chaldees, Babylon, Nineveh, Bagdad, Damascus, Jerusalem, Tyre and Sidon. It has given birth to three great religions—Judaism, Christianity, and Mohammedanism.

Clearly this region is crossed by routes of great importance and often of great antiquity. The extensive deserts of Syria and Arabia separated the fertile and civilized regions of Mesopotamia and Egypt, which carried on trade with each other from a very early period. Caravans from Mesopotamia followed the Euphrates valley north-westward, whence one route struck south-west by way of the oasis of Palmyra to Damascus, and another followed the Euphrates still farther on to a point within 130 miles of the Mediterranean Sea. From this point routes passed on through Aleppo to Antioch, Alexandretta, and the plain of Cilicia, or south to Damascus. The coastal plains

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of Palestine and Philistia furnished the natural route south of Damascus into Egypt. When Abraham left Babylonia for the land of Canaan he journeyed by way of Damascus, and a famine in Canaan caused him to go on into Egypt. Tyre and Sidon, the ports of Phœnicia lying immediately west of Damascus, were conveniently placed for tapping much of the overland trade from Mesopotamia and conveying the merchandise by sea to all parts of the Mediterranean Sea. Aleppo is the meeting-place of other important routes already mentioned in connexion with Turkey, to Izmir, Scutari, and Trabzon. Trabzon was also reached by a route from Bagdad up the Tigris valley and through Erzurum.

The ancient trade routes from India reached the Mediterranean and Black Seas by way of the Persian Gulf and Mesopotamia, rather than by the Gulf of Aden and Red Sea. The shores of the Red Sea were virtually unpeopled, the northerly winds being unfavourable for small sailing-boats and the Isthmus of Suez by no means easy to cross.

The Nile was used as a route to Thebes, whence the Red Sea could be reached across the desert.

The discovery of the Cape route to India by the Portuguese at the end of the fifteenth century naturally led to a decline in the importance of the routes through the Land of the Five Seas. But the opening of the Suez Canal in 1869 soon made the Red Sea one of the great trade highways of the world, and also restored the importance of the old land route to the Persian Gulf—the route which Germany sought to control by the Bagdad Railway. A gap of about a hundred miles still separates Mosul, the terminus of the Mesopotamian Railway, from the section running east from Aleppo.

Important caravan routes from Bagdad and the Persian Gulf cross the Nejd plateau to Medina and Mecca. The Hejaz Railway, running south from Aleppo through Damascus, has been completed all the way to Mecca and

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its port, Jidda, although the southern part of the line is in disrepair. South of Damascus a branch-line enters Palestine and follows the old coastal-plain route to Cairo.

Modern railway developments have lessened the importance of the old land routes, although there is still a considerable caravan trade along routes not served by railway. Two more recent modes of transport deserve special mention—motor-cars and aircraft.

Since 1923 there has been an almost uninterrupted service by motor-cars from Beirut to Bagdad, a distance of over six hundred miles, including more than five hundred miles of desert. The journey takes less than twenty-four hours. There are special six-wheeler cars for passengers, and others for the transport of mails and merchandise.¹ Aircraft are being increasingly used for the transport of passengers and mails. At present there are in this Arab region regular air-routes from Alexandria, *via* Gaza, to Bagdad, and from Beirut to Bagdad, whence air-liners continue their flights to Basra, Bushire, and thence to Karachi, in India.

PALESTINE

In a strictly geographical sense Palestine is part of Syria, but historically and, since the War, politically the name Syria has been applied only to the region lying north of Palestine.

Palestine, the Promised Land of the Jews, with an area of 10,000 square miles, is only a little larger than Wales, but its position as an important section of the ancient trade route between Mesopotamia and Egypt has always given it great historic and economic importance. The Bible relates something of the conflicts of the ancient empires of Egypt, Assyria, Babylon, Greece, and Rome,

¹ The world's largest motor-coach, 68 feet long, with ten wheels, now runs a regular service between Bagdad and Damascus. It carries 31 passengers and 250 gallons of petrol.

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in which Palestine was perforce involved. For centuries Palestine was under Turkish dominion. All the might of the Crusades failed to drive the Turks out of the Holy Land.

The population of Palestine is 1,171,000, of whom 760,000 are Moslems (65 per cent.), 307,000 Jews (26 per cent.), and 91,000 Christians (8 per cent.). Over 100,000 people are nomads.

In November 1917, when General Allenby was driving the Turkish forces out of Palestine, the British Government made a declaration to the effect that Palestine should be established as a national home for the Jews, with suitable safeguards for the rights of the non-Jewish population. Since 1923 Great Britain has been responsible for the government of Palestine in accordance with a mandate of the League of Nations. The task of governing a land inhabited by Jews and Moslems is extraordinarily difficult, chiefly because the Moslems naturally resent what they regard as an attempt to hand over their country to the Jewish minority. The ultimate aim, of course, is to establish Palestine as an independent, self-governing country. The Moslem section of the population is likely to remain predominant in numbers, but Jewish influence is bound to increase. The great majority of Jews (probably 99 per cent.) are scattered about the world, the largest numbers being in the United States, Russia, and Poland, and there are considerable Jewish elements in nearly every large city of Europe and North America. While the Jews of Palestine have always been farmers, Jews in other countries have devoted themselves to trade and finance, and with such conspicuous success as to arouse the enmity of other peoples. Hence, perhaps, the persecution of Jews in Russia in former days and recently in Germany.

The forty-six Jewish agricultural colonies established in Palestine before the War have been increased to 133. The new colonies are splendidly organized, and enjoy all

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the advantages of modern methods and equipment, thanks to the financial support of Jews in all parts of the world. There is every prospect of the establishment of flourishing Jewish colonies. The Jewish population of Palestine has trebled since the War, but the number of immigrants must of necessity be small.

The relief map shows that Palestine consists of three physical divisions running parallel to one another in a north and south direction. Each unit has its own distinctive conditions of climate and production.

The Coastal Plain. The coastal plain, one hundred miles long and about fifteen wide, is on the whole flat and fertile, being built largely of Nile mud carried by sea-currents. Exposure to the Mediterranean Sea gives it a climate free from extremes. Snow is unknown, and frost very rare. The rainfall, brought by the westerly winds and cyclonic storms of winter, comes almost entirely in the winter half of the year, summer being very dry. The mean annual rainfall gradually decreases from north to south. The plain of Acre, in the north, is very fertile and well watered. The bold headland of Mount Carmel separates it from the famous plain of Sharon, renowned for its beauty and fertility, while farther south lies the still wider plain of Philistia, in the main a region of good steppe-land. The better sections of the coastal plain are cultivated, producing wheat and barley, fodder crops, vegetables, and fruits (oranges, nuts, olives, grapes, bananas). This productive coastal plain was the highway of trade and marching armies. The Jews were rarely able to conquer the plain, and never held it for long. Many of the modern Jewish settlements are on the coastal plain, with dairy-farming as an important addition to their agricultural pursuits.

Jaffa (51,000), the ancient Joppa, is the port of Jerusalem, with which it is connected by a difficult, winding railway, and at present the chief port of Palestine. The famous Jaffa oranges are grown round the port, and are

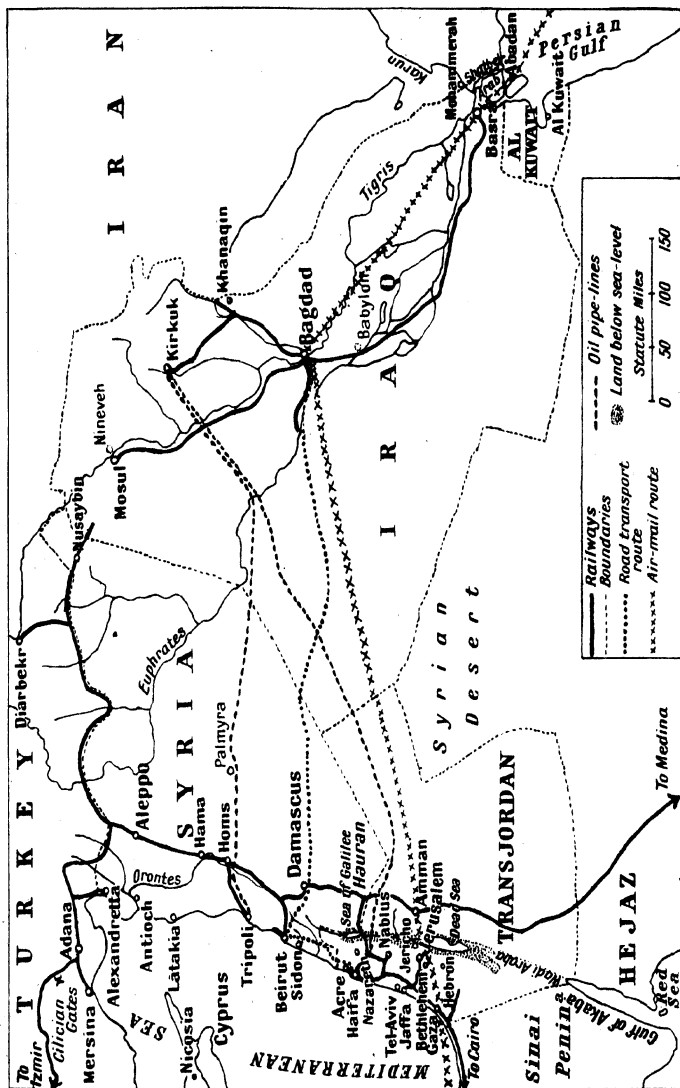


FIG. 24. PALESTINE, TRANSJORDAN, SYRIA, AND IRAQ

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an important export. Jaffa has a poor harbour, necessitating the use of lighters for passengers and goods. Tel-Aviv (46,000) is a modern concrete city built by Jewish enterprise on a sandy waste adjoining Jaffa.

Haifa (51,000), sheltered from south-westerly gales by Mount Carmel, is a much better port than Jaffa, and is rapidly growing in importance. A splendid new harbour, only a little smaller than that of Marseilles and capable of taking the largest vessels in the Mediterranean, was opened on October 31, 1933. Behind the massive main breakwater the harbour has been deepened, the sand dredged out being used to build up 400 acres of new land. Haifa is connected by railway with Egypt, Jerusalem, and the main Damascus-Medina line. The plain of Esdraelon gives easy access to the Jordan valley and beyond. In October 1934 the 600-mile oil pipe-line from Kirkuk (Iraq) to Haifa was in operation. A motor-road and railway will probably be constructed as direct links with Bagdad. Haifa is already the terminus of the desert motor route. Besides exporting products from the coastal plain (notably oranges), Haifa receives imports of sugar, rice, petroleum, and cotton goods, and is developing manufactures of cement, soap, and cigarettes. Haifa is destined to become a great port for trade between Europe and the East, for it gives a shorter route from India (saving between three and four days) than that of the Suez Canal.

Gaza (17,000) and Acre (8000) are minor ports.

The Central Uplands. The central uplands cover roughly twice the area of the coastal plain, and are composed mainly of almost horizontal beds of very hard limestone and softer chalk. The picturesque hills of Galilee in the north contain several lava-flows which have weathered into fertile soils. This is the best-watered and most fertile part of the hill-country, producing large crops of figs, grapes, and barley and supporting a dense population. Nazareth (9000), the home of Jesus, is the

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chief town of Galilee. The broad, fertile plain of Esdraelon separates Galilee from Samaria and Judæa. This valley is the chief centre of modern Jewish settlement. Samaria is relatively fertile and productive in wheat, olives, etc., but in Judæa there is a scrub type of vegetation, with scattered thorny bushes and dwarf oaks—a region of dry pastures for sheep and goats. A few terraced slopes are planted with olives, figs, and vines. The former forests have been almost entirely cut down, with the consequent washing away of soils, and there is reason to believe that the climate, in common with that of other lands bordering the Mediterranean, has become drier within the last two thousand years. The eastern scarp of the plateau falls very steeply to the Jordan valley, forming the Wilderness of Judæa, a rocky, waterless, barren land inhabited by a few wandering Bedouin Arabs. The plateau itself formed the 'island' stronghold of the Jews, lying between the traffic streams of the coastal plain and the Jordan valley.

Jerusalem (90,500), the capital of Palestine, is built in the heart of the Judæan plateau at a height of over 3000 feet and almost surrounded by hills and ravines that made defence easy. It is the natural centre of the only part of the plateau that contains fertile valleys and productive fields. Jerusalem is a walled city with separate quarters for Moslems (the largest section), Christians (containing the church of the Holy Sepulchre), Jews, and Armenians. Most of the city is typically Eastern, with narrow streets, low, flat-roofed houses, and walled gardens. Nablus (17,000), Hebron (18,000), and Bethlehem (7000) are smaller towns on the plateau.

The Rift Valley. The rift valley, about seventy miles long and ten to fifteen miles wide, is a deep, steep-sided valley formed by subsidence and connected in formation with the Great African Rift Valley, which extends south to the Zambezi. The greater part of the rift valley in Palestine is well below sea-level. The river Jordan, which has cut its channel on the level floor of the valley,

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flows due south through a small lake into the Sea of Galilee, a lake held up by a lava-sheet. The dark, muddy river is too swift for navigation and too far below the valley-floor for irrigation. Flanked by slimy mud-banks and unhealthy jungle, it flows due south from the Sea of Galilee to the Dead Sea, which has an average depth exceeding 1000 feet and a surface 1292 feet below sea-level. The rift valley is oppressively hot in summer and rather mild and never frosty in winter. Rainfall is naturally very light, save in the north, which lies more open to the Mediterranean, and the shores of the Dead Sea, like the waters themselves, are utterly devoid of life. Having no outlet but evaporation, which removes only pure water, the Dead Sea holds the accumulated salts brought in by rivers for an enormous period of time, and the water is extraordinarily dense (24 per cent. salt). The Jordan valley section of the rift valley is known as the Ghor¹; south of the Dead Sea the depression is continued to the Red Sea by the hundred-mile-long Wadi Araba.

The rift valley can produce many valuable commodities. A concession was granted in 1929 for the exploitation of minerals in the Dead Sea (common salt, potash, and bromide), and great developments may be expected. Another important scheme now in progress is the damming of the Jordan just below its exit from the Lake of Galilee to produce hydro-electric power and provide water for irrigation, which would permit the growth of cereals and fruits, as in the coastal plain. Jericho, the largest town in the rift, is less than fifteen miles from Jerusalem, but the road connecting them is steep and rocky. Bananas are grown near Jericho.

Trade. The mainstay of Palestine is agriculture, which employs the majority of the population and furnishes the chief export—oranges, almost entirely from round Jaffa. Other exports are soap, watermelons, grain (maize, millet,

¹ Arabic, El-Ghór = 'the Rift.'

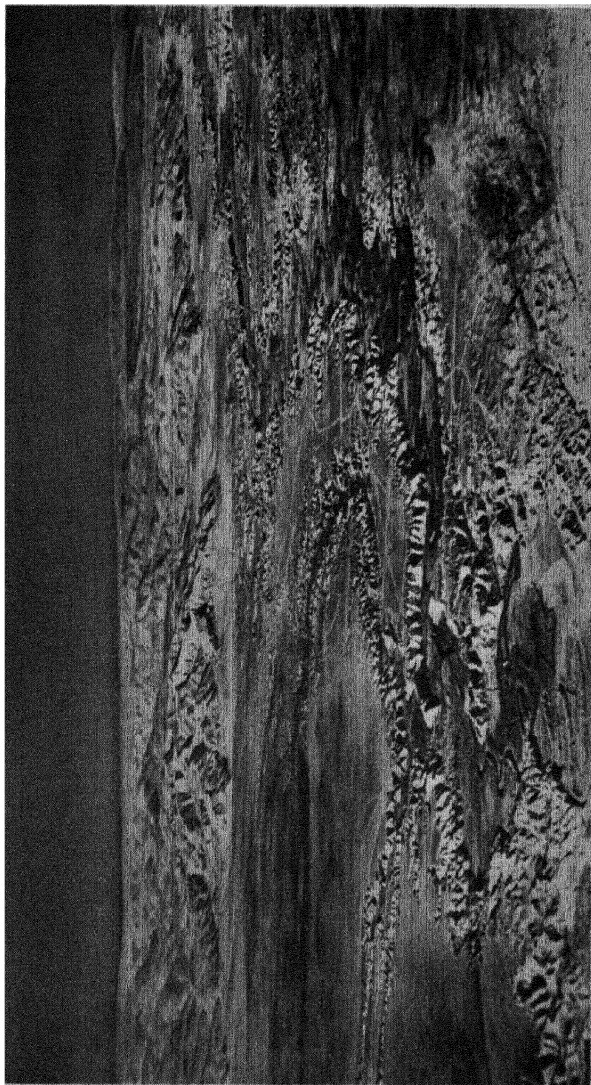


FIG. 25. THE JORDAN VALLEY

Almost the whole of the Jordan valley is included in this infra-red panorama, for in the distance, on the extreme right, is the Lake of Galilee, nearly seventy miles away. To the left of the lake and beyond the plain of Esdraelon lies Nazareth, and farther to the left is Mount Carmel. Beyond the lake lie the mountains of Galilee, on which stands Safed, the "city that is set on a hill." This picture is of unusual interest, for it indicates at a glance the dominating influence that the Jordan has had on the country throughout history. The river is seen winding sinuously through the valley, which is generally believed to be part of an old sea-bed.

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sesame, and barley), wines, lentils, almonds, sheep- and goat-skins, and wool. The leading industries are the making of wine, soap, and olive-oil and the planting of timber and fruit-trees. The value of imports is nearly five times that of exports, the principal items being food-stuffs (flour and wheat, rice, sugar, coffee, potatoes, etc.), manufactured goods (cotton, wool, and silk fabrics and clothing, machinery, motor-cars, etc.), and raw materials (kerosene, benzine, timber, manures, etc.). The bulk of both import and export trade is carried on with Great Britain, Egypt, Syria, and Germany.

TRANSJORDAN

Transjordan—that is, the land beyond the Jordan river—is covered by the Palestine mandate, but is governed by a local Arab administration, and definitely excluded from the scheme of establishing a Jewish National Home. Transjordan is a plateau region of volcanic and limestone rocks. The population consists of 260,000 Arab Moslems, 30,000 Arab Christians, and 10,000 Caucasians, all supported by agricultural and pastoral pursuits. East of the Hejaz Railway the country is largely desert, but the western section is very fertile and capable of extensive agricultural development. Amman, on the railway, is the terminus of a metalled motor-road from Jaffa *via* Jerusalem and Jericho. Other roads link Amman with all the chief towns in Transjordan, and its aerodrome lies on the Cairo-Bagdad air-route. The beautiful mountains of Gilead to the north-west are a limestone region with good pastures and fertile valleys growing grain and fruits.

SYRIA

To the north of Palestine and Transjordan lies Syria, governed by France under a League of Nations mandate. Syria is a little larger than England and Wales. The

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population of 2,840,000 is extremely mixed, including Arabs (the chief element), Turks, Turkomans, Kurds, Armenians, Iranians, and Jews. The majority are Moslems, but there has long been a strong Christian element.

Syria, like Palestine, consists of north-south belts of country.

The Coastal Plain. The coastal plain is very narrow in most parts, but is well watered and produces important crops of oranges, olives, tobacco, cereals, mulberries, and vegetables. Beirut (135,000), standing in a fertile area, is the chief port, and the only one with a harbour. It serves as port for Damascus, and exports raw silk. Since 1929 it has been linked with Marseilles by an air-mail service. Tripoli (37,000), Latakia (22,000), Alexandretta (14,000), and Sidon (the old Phoenician port) are minor ports with only open roadsteads. Tripoli is the terminus of an oil pipe-line from Kirkuk, in Iraq.

The Western Mountains. The western mountains, lying immediately east of the coastal plain, consist of several ranges, chiefly of limestone, broken by transverse valleys reaching to the sea. On the whole these ranges rise steeply from the plain, especially in the Lebanon Mountains, which have snow-clad peaks of over 10,000 feet. Very few "cedars of Lebanon" remain, but terraced slopes support many vineyards and mulberry gardens, and rich farm-lands lie in the irrigated valleys.

The Central Depression. This is nothing like so deep as that of the Jordan valley. It is drained southward by the river Litani and northward by the Orontes, both cutting transverse valleys to the Mediterranean. The Orontes valley is the more important. Its lower valley, together with the plain of Antioch, is very fertile, the whole region producing mulberry-trees (for silkworms), cereals, pulses, vegetables, and fruits. Homs (53,000) and Hama (40,000) are the chief towns in the upper valley of the Orontes, another productive area. Both lie on the standard-gauge railway from Aleppo, which runs south

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to the metre-gauge line from Beirut. Antioch (28,000) is an ancient city near the mouth of the Orontes, commanding the important route eastward through Aleppo to the Euphrates, which is here nearest to the Mediterranean.

The Eastern Highlands. The eastern highlands consist mainly of the northern section of the Arabian plateau. In the south lie the wild, rugged Anti-Lebanon Mountains, separated from Mount Hermon (10,000 feet) by the narrow, rocky gorge of the river Barada,¹ a valley that is used by the railway from Beirut to Damascus. These mountains shut out rain-bearing winds, and from their eastern slopes the illimitable desert stretches away.

Damascus (194,000) is built at the foot of the Anti-Lebanon Mountains, where the Barada supplies water for the irrigation of 150 square miles of desert, turning it into a wonderfully fertile oasis producing fruits, vegetables, and cereals. Over one hundred villages are dotted about the Damascus plain. The ancient trade caravans from the East naturally made for Damascus, a welcome harbour after crossing the sea of the Syrian Desert. The city, with its beautiful gardens and parks, is the capital of Syria and the junction of important routes to Bagdad, Beirut, Aleppo, and Mecca. South of Damascus lies the plateau of Hauran, where fertile volcanic soils and light rainfall provide good pastures and permit the cultivation of wheat. The Hauran may again become the granary of Syria, as it was centuries ago.

The Eastern Desert. The rest of Syria is an arid plateau, save only in the north, where the fertile region surrounding Aleppo forms a link between the plain of Antioch and the Euphrates valley. Aleppo (177,000) is at the junction of important routes of great antiquity. It stands midway on the shortest route between the Euphrates and the Mediterranean. To the south lie the

¹ The Barada is the Biblical Abana. The Pharpar lies a little to the south.

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routes to Damascus and Mecca, Palestine and Egypt. On the north-west Cilicia gives access to the Anatolian plateau, Izmir, and Istanbul, while the route to Trabzon goes to the north. Aleppo is now a railway centre, but its walls, its minarets, and its flat-roofed houses, separated by narrow streets that are thronged with Arabs, camels, and donkeys, remain typically Eastern.

Agriculture is the chief industry of Syria, with barley, wheat, maize, sesame (for its oil-seeds), pulses, fruits, cotton, silk, and tobacco as leading products. The chief wheat areas are the Damascus plain and the Hauran plateau. The northern plains, including the Aleppo region, are the principal areas for mulberry-trees (for silkworms) and cotton. The chief fruit-trees are the olive, grape, mulberry, lemon, banana, and orange. Iron-mining in the Lebanon region and the rearing of sheep and goats are other occupations of importance. Manufacturing industries are relatively on a small scale at present. All the larger towns share in silk production, and there is also a small output of flour, oil, soap, and wine. The chief exports are animal produce, fruits and vegetables, and cotton goods. Imports, amounting to more than twice the value of exports, are mainly textiles, grain, iron and steel, animal produce, and chemicals.

IRAQ

The post-War State of Iraq includes the ancient Mesopotamia. Iraq is bounded by the plateaux of Arabia, Armenia, and Irania, the most important part of the country being the low-lying alluvial plains built up by the Euphrates and Tigris. These great rivers rise in the lofty Armenian plateau, where heavy rains and melting snows supply abundant waters. The Tigris is the swifter river and more suitable for navigation. Its more even flow is due to the left-bank tributaries from the Zagros Mountains. The much slower Euphrates has

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frequently changed its course, and navigation is impeded by shallows. In their lower courses the two rivers have raised themselves slightly above the general level of the plain, and ultimately they join to form the Shatt-el-Arab, which carries enormous quantities of silt into the shallow Persian Gulf, building out a delta at the rate of about seventy feet a year. Tidal water ascends to forty miles above Basra, and by checking the flow of river-water increases the deposit of alluvium and produces extensive flooding. Iraq has extremely hot summers, most of the plains having a temperature exceeding 90° F. in August, while the January temperature is about 50° F. The scanty rainfall comes almost entirely in winter, and is naturally heavier on the mountains to the north and east. The rivers consequently rise towards the end of the rainy season, reaching their maximum floods about May.

The plains of Iraq are one of the most fertile regions in the world, and, being flanked by arid plateaux, form the most important link of all on the ancient trade route between India and the Far East on the one hand and the Mediterranean and Black Sea countries on the other. Some of the earliest civilizations arose in Mesopotamia, which, like Egypt, is a wonderfully fertile island in the midst of a sea of desert. In this island it was possible to build up a high civilization based upon agriculture. Centuries of misrule and neglect had resulted in a sad decline, but it is possible that future developments may surpass the ancient glories. At the end of the Great War the region was freed from Turkish domination, and the new State of Iraq was set up under a League of Nations mandate entrusted to Great Britain. King Faisal, the first King of Iraq, was elected to the throne in 1921, and on his death in 1933 he was succeeded by his son Ghazi. In 1927 Great Britain signed a treaty recognizing Iraq as an independent country, and in 1932 Iraq became a member of the League of Nations. A strong Government is needed in Iraq to protect the settled peoples from the

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attacks of hill-tribes and nomads. It is certain that Britain will support the central Government of Iraq against any serious assaults, if only because of our desire to protect the land route to India and the development of the oilfields, in which we are vitally interested.

Iraq is twice as large as England and Wales, but its population is only 2,857,000, of whom over 90 per cent. are Moslem Arabs, the majority of the remainder being Jews, Christians, and Indians. The northern boundary includes a small section of Kurdistan, a region of lofty mountains with fertile valleys, inhabited by the fierce and warlike Kurds. The rest of Northern Iraq is rather bare, undulating plains, broken with hill-ranges. Grasses grow in the spring in many valleys, but cultivation is possible only in the main river valleys.

From a little north of Bagdad the level flood-plain, flanked by a margin of desert, stretches with no important break in a south-easterly direction to the Persian Gulf. This is the most important region of Iraq. Its rich soils are increased annually by the overflowing rivers, but unfortunately much of the land has been allowed to deteriorate into malarial swamps. Given adequate schemes of irrigation, at least 10,000 square miles of land could be cultivated in winter, and about half that area in summer. There are in operation numerous irrigation canals and hundreds of pumps, and very primitive methods of raising water are still employed, but present agricultural production is only a small fraction of what is possible, and primitive methods and implements are generally employed. Early in 1935 a British firm began work upon a barrage dam (nearly 2000 feet long and nearly 50 feet high) across the Tigris at Kut. Within three years an extensive area between the Tigris and Euphrates—the traditional site of the Garden of Eden—will thus be irrigated for heavy crops of grain and fruit.

As in Egypt, two distinct classes of crops are grown: winter crops of wheat, barley, and pulses are harvested

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in April and May; summer crops of rice, maize, and cotton are harvested between August and November. There are extensive plantations of date-palms along the banks of the rivers, especially the Shatt-el-Arab, and dates are easily the most valuable crop of all. They are the staple food of the Arabs, and date-stones are ground up for animal fodder. Date-palm leaves are woven into matting, commonly used in house construction, the trunk supplies a fibre for making ropes, and the timber is employed for buildings and bridges. The best-quality dates are exported, their value exceeding that of any other commodity. Considerable quantities are sent to Britain.

Rice, grown mainly on the easily flooded fields of Southern Iraq, is the chief grain crop. Maize, millet, sesame, hemp, liquorice, and lentils are other important crops in the south. Barley, providing a surplus for export, wheat, mainly for home consumption, tobacco, and temperate fruits are grown chiefly in Northern Iraq. The British Cotton-growing Association is encouraging the cultivation of Egyptian cotton, and the crop is likely to increase.

The animal wealth of Iraq is considerable. Both nomadic and settled Arabs have flocks and herds of sheep, goats, camels, horses, and donkeys. Wool, including mohair from the Angora goats of the extreme north, and hides and skins are important exports.

One of the most promising developments of recent years is that of the oilfields on the borders of Iran. Adequate supplies of cheap oil-fuel should greatly assist the extension of irrigation-works based on pumps. In all 1200 miles of oil pipe-line have been constructed, and, as has been said, oil is now sent across the desert to Tripoli (Syria) and Haifa (Palestine), the terminal ports of the pipe-lines.

Communications and Towns. A metre-gauge railway runs from Basra to old Bagdad, whence a wagon-ferry crosses to new Bagdad to link up with the metre-gauge

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line running north close to Khanaqin and to Kirkuk, two oil centres. The line is to be continued from Kirkuk to Mosul. A standard-gauge line runs north from Bagdad along the right bank of the Tigris to Mosul. A special motor service from Kirkuk, *via* Mosul, provides a link with the old uncompleted Bagdad Railway at Nusay-



FIG. 26. THE RIVER TIGRIS AT BAGDAD

Note the flat roofs, the date-palms, and, in the background, the desert sands.

Royal Air Force official photograph. Crown copyright reserved

bin (Syria). By this means a direct route enables passengers to travel from London, crossing Europe by the Orient Express, to Bagdad in eight days and Bombay in eighteen. The England-India air-mail service has stopping-places at Bagdad and Basra. Roads, constructed mainly since the War, are mostly unmetalled. During the War the Tigris regained much of its old importance in navigation.

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Bagdad (250,000), the capital and chief city of Iraq, was founded in the eighth century on the right bank of the Tigris, at a point where it approaches so closely to the Euphrates that both rivers are available for irrigation and transport. Bagdad stands at the junction of the river routes with ancient caravan routes from Iran, Arabia, and Syria, and thus became an important trade centre, with manufactures of textiles and pottery. Old Bagdad has a romantic appeal as the city of Haroun-al-Raschid, the Moslem caliph of *The Arabian Nights' Entertainments*. The ruins of Seleucia, Ctesiphon, and Babylon, centres of early civilizations, are in the Bagdad district.

Mosul (350,000), the chief city of Northern Iraq, is near the site of Nineveh, the capital of the Assyrian Empire, and is again at the junction with the Tigris of land routes from Syria and Kurdistan. Mosul is a great market and trade centre in a region containing oil, coal, and iron.

Basra (166,000), at the terminus of the railway, is the great port of Iraq, and stands sixty miles from the Persian Gulf on the Shatt-el-Arab, accessible to ocean-going vessels. Basra handles the export trade in dates, barley, wool, etc., and the import trade in cotton goods and other manufactures, sugar and other foodstuffs. It should be noted that the Shatt-el-Arab forms the Iranian boundary.

ARABIA

South of Iraq extends the huge peninsula of Arabia, covering an area of 1,000,000 square miles—more than eight times that of the British Isles. Arabia is an ancient plateau for the most part over 2000 feet above sea-level. The edges of the plateau have been greatly fractured, and the whole peninsula is tilted north-eastward. Thus, the steep escarpment on the south-west is the highest section, reaching to nearly 10,000 feet, while there is a gradual descent to the low-lying plains bordering the

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Persian Gulf. In Oman, however, lofty ranges up to 10,000 feet descend steeply to the Gulf of Oman. Volcanic rocks occur in the fractured coastal margins, but most of the interior consists of ancient sandstones (overlying ancient crystalline rocks) that have been broken into sands by the alternate expansion and contraction of the rocks under the influences of hot sun and cool night.

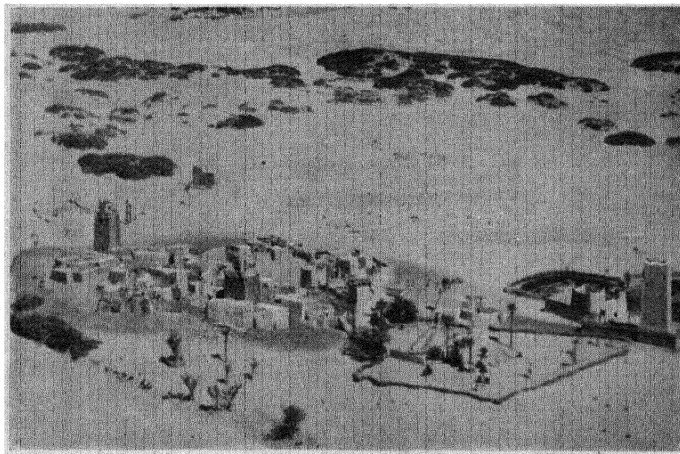


FIG. 27. EN NUQUB

A typical oasis of the Arabian Desert.

Royal Air Force official photograph. Crown copyright reserved

Only the margins of Arabia receive any rainfall. The north has scanty rains in winter and spring from Mediterranean winds and cyclones. Yemen and Oman, the mountainous regions of the south, are the best-watered sections, receiving rain from the summer monsoon winds. The great heart of the peninsula has the climate typical of hot deserts—extreme heat during the day, cool nights, and intensely dry atmosphere. There are vast extents of poor steppe-land, sandy waste, and mountainous wilderness, with many oases, some of considerable size. The

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Great Arabian Desert in the south and the Nefud Desert in the north are the chief barren wastes. There are no permanent rivers, but numerous *wadis*—that is, valleys that contain streams only after a period of rainfall. The western *wadis*, descending to the Red Sea, are deep, narrow gorges; those leading towards the Persian Gulf are broad and shallow and give rise to many oases.

The inhabitants of Arabia probably number about 10,000,000, of whom 1,000,000 are Bedouin nomads, and practically all are Moslems. From very early times the Arabs have been great traders, and those living near the seas that flank Arabia have long been fine sailors. Modern civilization owes to the Arabs the early developments in astronomy, mathematics (especially algebra), and other sciences.

The scarcity of pasture and water compels the Bedouin tribes to move constantly with their flocks and herds. There is a definite limit to food-supplies, so that increasing population has led to frequent strife among the tribes themselves, to assaults upon the settled peoples of Arabia, and, what is more important, to invasions of neighbouring agricultural lands—Mesopotamia, Syria, and Egypt. These nomads have exercised very great influence, giving to the world the religions of Judaism, Islam, and, in a way, Christianity. But their tribal organization has grown weaker, owing mainly to the establishment since the Great War of the powerful kingdoms of Hejaz and Nejd, governed jointly by one of the greatest Arabs, Ibn Saud, who, as the result of his conquests, now controls the whole peninsula, with the exception of the coastal fringes in the south.

The Nejd is the large central plateau, with sufficient rains in the winter half of the year to support oases and provide animal pastures. Dates and other fruits, wheat, and barley are cultivated, and animals are reared, chiefly camels, horses, donkeys, and sheep. The export trade is very small, the chief items being dates, clarified butter,

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camels (to Syria and Egypt), and Arab horses (to Bombay). Cloth, tea, coffee, sugar, and rice are the chief imports. The total population of the Nejd is about 3,000,000. Riyadh (30,000) is the capital, and there are nine other towns with populations exceeding 10,000.

The Hejaz stretches along the shores of the Red Sea, and has a population of about 1,500,000. Its products resemble those of the Nejd, but there are still fewer exports, the country being dependent almost wholly on the annual pilgrimage to the capital, Mecca (130,000), the birthplace of Mohammed, and Medina (30,000), his burial-place. An annual average of about 100,000 pilgrims from abroad make the journey. The Hejaz Railway,¹ coming south from Damascus, is often called 'the Pilgrims' Railway.' Many pilgrims come by caravan routes across the Nejd or from Cairo through Sinai, but the majority now reach Mecca by landing at its port of Jidda (40,000), on the Red Sea.

The Yemen, in the south-west of Arabia, is the most populous part, and is divided into several political regions, including Aden. Its lofty mountains receive rain from the south-west monsoon and shelter the coastal belt from the cold north-east monsoon of winter. The country is in general fertile and productive. Barley, wheat, millet, fruits, and coffee are important products. The conditions for coffee are excellent. The mountain-slopes, with their fertile volcanic soils, are terraced to the top, and a mist that rises every morning from the sea screens the slopes from the fierce heat of the middle part of the day.² Two or three harvests of coffee of superlative quality are secured each year. The chief inland town is Sana (25,000), a walled city with eight gates, built at a height of 7260 feet above the sea. Hodeida and Mocha are the chief ports, exporting coffee and hides.

¹ The line is not in good condition.

² Coffee-trees grow much better if they are shielded from the direct heat of the sun.

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Aden. The volcanic peninsula of Aden is a British fortified coaling-station with a splendid harbour, situated 100 miles east of Bab-el-Mandeb, the narrow entrance to the Red Sea. It is a region of burning heat and drought, devoid of vegetation. All supplies are imported, and water is obtained by distilling sea-water. The small island

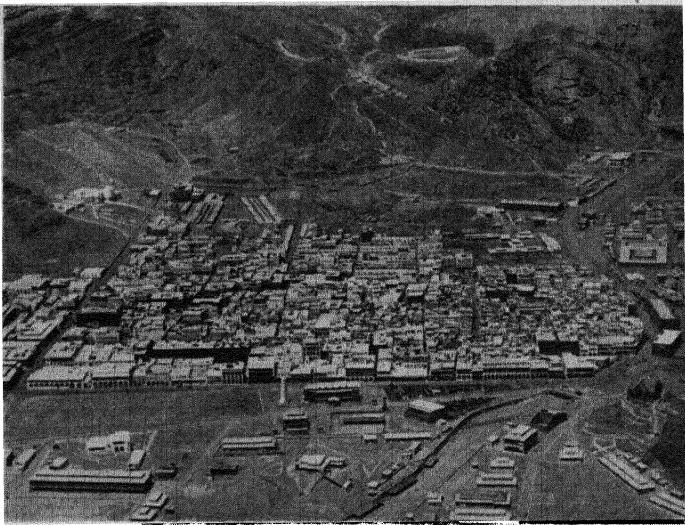


FIG. 28. ADEN

This is the Arab town of flat-roofed houses, huddled together on the floor of an extinct volcanic crater, devoid of water and of plants. It lies four miles from the modern port.

Royal Air Force official photograph. Crown copyright reserved

of *Perim*, in the middle of Bab-el-Mandeb, is included in the Aden settlement, to which are also attached as a British Protectorate a hinterland of some 42,000 square miles and the tiny *Kuria Muria Islands*, over eight hundred miles north-east of Aden, off the south-east coast of Arabia. Aden was formerly governed by the Bombay Presidency, but since 1932 it has been under a Chief

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Commissioner. Its very important position on the great highway to India and the Far East results in a large volume of trade in the transshipment of cotton goods, grain, hides and skins, tobacco, coal, coffee, sugar, etc. *The Hadramaut*, a coastal region of fertile valleys lying east of Aden, governed by various native chiefs, is part of the Protectorate.

Sokotra, an island off the coast of Africa, is also under British protection. Sokotra is a little larger than Cornwall, and produces dates, gums, sheep, cattle, and goats.

The *Bahrein Islands*, a group of low-lying islands in the Persian Gulf, are governed by an Arab Moslem ruler under British protection. The greater part of the trade of the Nejd passes through Manama (25,000), the capital and commercial centre. The islands are the centre of the great Persian Gulf pearl fisheries, to which they send during four months of summer over 500 boats and 15,000 divers.

Oman is an independent State almost equalling Great Britain in area and governed by an Arab sultan. Its population of 500,000 is chiefly Arab, but there are many negroes and Baluchis on the coast. Dates are an important crop and the leading export, and camels are bred by the inland tribes. Trade is mainly with India, and is in the hands of British Indians. Muscat (5000), the capital and port, is a port of call between Bombay and Basra.

THE PLATEAU OF IRANIA

The huge plateau of Irania, largely a mile or more above sea-level, extends from the Armenian plateau on the west to the Pamirs and Sulaiman Mountains on the east. The Iranian plateau is ribbed and flanked by lofty ranges of young fold mountains. On the north the Elburz Mountains rise steeply from the Caspian Sea, culminating in the extinct volcanic peak of Demavend (18,600 feet). Farther east lie the Hindu Kush, while the south-west

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of the plateau has parallel chains that include the Zagros Mountains. It follows that the plateau is mainly an area of inland drainage basins, the three largest depressions being those of the Salt Desert, Lut Desert, and Seistan, but a few rivers drain to the Caspian on the north and the Persian Gulf or Arabian Sea on the south.

The climate of the plateau is marked by intense dry heat in summer and rather severe cold in winter—both in the main due to the remarkable clearness of the atmosphere. The scanty precipitation comes in winter, and by covering the highest ranges with snow provides water for irrigation in spring, although the streams quickly end in salt swamps. The mountain-slopes facing the Caspian Sea, however, present a striking contrast. Their climate is more temperate, and the abundant winter rainfall supports splendid forests. The low coastal plains along the southern fringe of the plateau are oppressively hot and dry and rather unhealthy.

IRAN ¹

Iran, which includes the greater part of the plateau of Irania, is an independent kingdom more than five times the size of the British Isles, but with a population of only about 10,000,000, including 3,000,000 nomads. Over 80 per cent. of the people are Moslems. Two thousand years ago Iran was for varying periods the centre of a great empire, including in 500 B.C. Egypt and all the land between the Ægean Sea and the Indus. But Iran stretches across the great land route to the East, in between the Caspian Sea and the Persian Gulf. It is thus exposed to the invasions of Arabs, Turks, and Mongols, and is a region of complex peoples. There are Kurds, Armenians, and Arabs in the broken hill-country of the west and

¹ In 1935 the Persian Government decided that in future their country should be known under its old name of Iran, and the inhabitants be called Iranians.

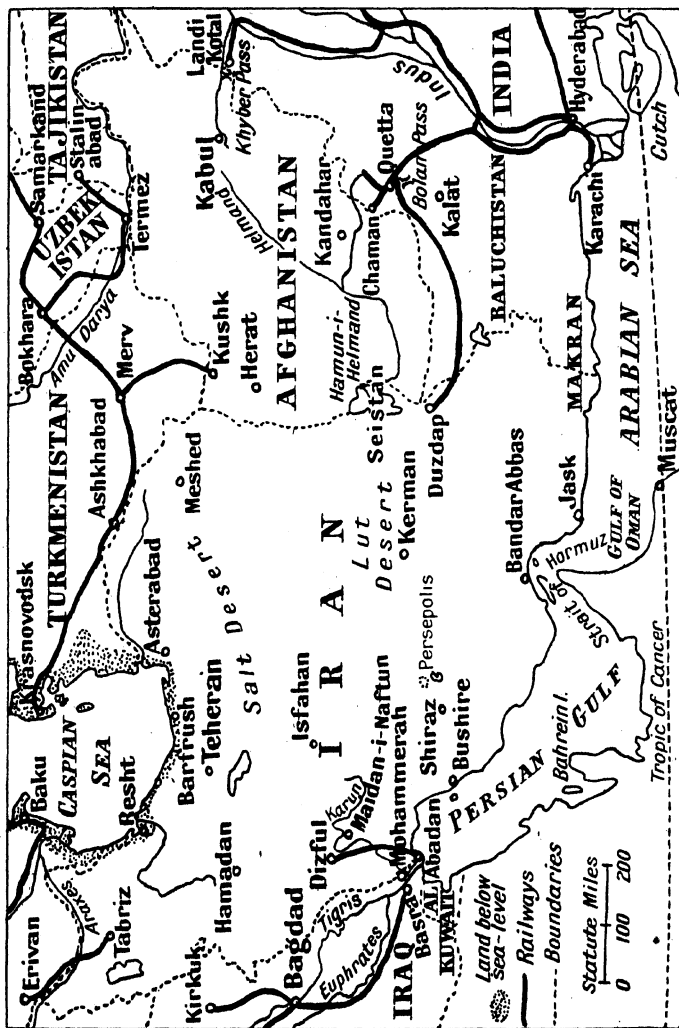


FIG. 29. RIVERS, RAILWAYS, AND CHIEF TOWNS OF IRAN, AFGHANISTAN, AND BALUCHISTAN

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Turks in the north-east. Only in Central and Eastern Iran does one find a considerable block of true Iranians, speaking the Iranian tongue. In so mountainous a country, which includes extensive deserts, travel and transport are extraordinarily difficult, and the population is concentrated in widely scattered areas where irrigation is possible, the most densely peopled region being on and near the shores of the Caspian Sea. Before the Great War Russia and Britain were both greatly interested in Iran, but since the War Britain has had the greater influence. Her concern lies in guarding the land route to India and ensuring the safety of the Iranian oilfields, which are being developed by the Anglo-Iranian Oil Company.

Iran is in the main dependent upon agriculture, supported by rather primitive irrigation, except in the well-watered provinces of the north. Modern irrigation methods would greatly increase the area of agricultural land. The most important crop is rice, grown mainly in the north, and the surplus is exported to Russia. Wheat, barley, millet, tobacco, coarse short-staple cotton, and opium are widely grown. Opium is exported, chiefly to China, but the efforts of the League of Nations to abolish the disastrous traffic in drugs may lead to a drastic reduction in output. Mediterranean fruits are grown in the north and dates along the Persian Gulf. The north is also responsible for most of the silk production, and has valuable forests of deciduous trees. Gum arabic and other gums are obtained from thorny desert plants. Horses, mules, donkeys, and camels are still used as the chief means of transport, and the hill pastures support many sheep and goats, which are taken to the lower mountain-slopes in summer, returning to the warmer valleys in winter. Wool and hides are exported, and hand-made woollen carpets have long been a famous export of Iran. The Persian Gulf fisheries are fairly important, sturgeon being the most valuable catch.

Iran has great mineral wealth, but at present oil is the

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only mineral developed, thanks to the discovery by an Englishman in 1908 of the Maidan-i-Naftun oilfield, about two hundred miles north of the head of the Persian Gulf. A pipe-line 145 miles long conveys the oil to Abadan (40,000), an island port with oil refineries, at the mouth of the Shatt-el-Arab, and tank-steamers are also loaded at Mohammeráh (30,000), on the Karun river. The Anglo-Iranian Oil Company (in which the British Government holds shares to the value of £2,000,000) was founded in 1909. The company has worked with remarkable success, its annual output of oil being now over 7,500,000 tons. The Iranian Government has derived a considerable income from royalties, and the company has built splendid modern towns, roads, and railways.

Iranian trade is mainly carried on with the British Empire and Russia. The most valuable exports are mineral oils and carpets; the chief imports are cotton textiles, sugar, and tea.

Improved communications are necessary for the expansion of production and commerce. There are several motor-roads, mainly centred on Teheran, and the use of motor-cars and lorries is increasing; but at present rather less than five hundred miles of railway are in operation. The chief lines link Tabriz with Erivan and Duzdap with Quetta. A new line (910 miles) from the Persian Gulf to the Caspian Sea, *via* Teheran, is under construction. Air routes link Teheran with Moscow, Meshed, Bushire, and Bagdad.

Teheran (350,000), the capital of Iran, lies just south-west of Mount Demavend. It is the centre of the chief caravan, motor, and air routes. Tabriz (180,000), terminus of the railway from Transcaucasia, is the centre of the most productive and best-peopled part of the plateau, with crops of cotton, tobacco, cereals, and fruits and manufactures of carpets. Tabriz handles much trade from India, Central Asia, and Europe. Resht (80,000) and Barfrush (30,000) are the chief market centres on the

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Caspian shores of Iran. Isfahan (100,000), a former capital, is an oasis town in an irrigated region growing fruit, grain, and tobacco. Meshed (85,000), the burial-place of Haroun-al-Raschid, is the chief holy city of most Iranian Moslems. Meshed is one of the main centres for carpets, shawls, silks, and velvets, much of the trade going by motor-road to Ashkhabad, in Turkmenistan. Shiraz (35,000), another oasis town, with beautiful rose-gardens, is near the ancient Persepolis, burial-place of King Darius. Kerman (30,000) and Hamadan (30,000) are centres for the manufacture of carpets and silks.

Bushire (25,000), a poor port on the Persian Gulf, handles the bulk of Iranian trade in carpets, fruits, grain, etc. The oil export of Abadan and Mohammerah is, of course, much more important.

AFGHANISTAN

Afghanistan is rather more than twice the size of the British Isles, and its population of about 12,000,000 is almost wholly Moslem in religion and Iranian in language. Afghanistan lies on the land route to India, and its *rôle* in history has been that of a buffer-state between the plains of Turkestan and Northern India, and the chief barrier to further Russian expansion in the direction of India. At different periods in history the country has been held by Iranians, Chinese, Huns, Turks, and Mongols. Afghanistan has long proved a troublesome and unruly neighbour of India, for the hardy tribesmen, especially the Pathans, have repeatedly made attacks on the fertile, settled lands of North-west India. Conditions have improved since the signing of a treaty between Britain and Afghanistan in 1921, whereby Afghan independence was recognized and closer contacts established in trade.

Afghanistan is a country of lofty plateaux and mountains, the only region of moderate elevation being part of the Amu valley in the north. To the south-east of this

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valley tower the Hindu Kush. On the whole the climate is one of extremes, summer being hot and winter cold. Precipitation is rather light, coming mainly in winter. The south-western quarter of the country—the Seistan depression—is an almost uninhabited sandy desert, where the river Helmand flows into the marshy lake Hamun-i-Helmand.

The majority of the people are naturally found in the fertile valleys, of which the most important are the well-peopled lands of the Kabul river and its tributaries, to the south of the Hindu Kush. Irrigation from streams and wells in many valleys permits the growth of large quantities of fruits (apple, pear, almond, peach, quince, apricot, plum, cherry, pomegranate, grape, fig, date, mulberry), which form a staple food of many people and are an important export. The other staple foods are wheat and barley and the flesh of the fat-tailed sheep.¹ This sheep is native to Afghanistan; it supplies the chief flesh food; its tail-fat is used as butter; and its wool and skin provide warm clothing and furnish the leading export of the country. The making of sheepskin coats, silks, felts, and carpets are local industries. Copper, lead, iron, and coal are found in Afghanistan, but mineral workings scarcely exist. Trade is carried on almost entirely with India and Russian Turkestan.

Transport is naturally slow and difficult, the commonest means being pack-animals—camel, donkey, horse, and ox. There are no railways, but several roads are open to motor traffic. The chief settlements are tiny villages in the valleys, walled for protection, and there are few large towns.

Kabul (80,000), the capital, is the trade centre of the richest and most densely peopled part of the country, and commands the western approach to the Khyber Pass. Kabul has State-owned factories making matches, clothing, soap, boots, and weapons, chiefly for the army.

¹ See p. 85.

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Herat (30,000), in the north-west, and Kandahar (60,000), in the south, are other towns of importance, the latter standing on the route to Quetta and the Bolan Pass, which gives access to the Indus plain.

EXERCISES

1. Write an account, illustrated by a map, of petroleum production and export in the Near East.
2. Indicate the principal fruit-growing areas of the Near East, name the fruits produced, and give some account of the export trade.
3. Carefully describe the position and explain the importance of Damascus, Haifa, Beirut, Bagdad, and Izmir.
4. To what extent may the Near East be described as "the cradle of human civilization"?
5. Construct a map to show the chief lines of communication, both ancient and modern, in South-west Asia.
6. Briefly compare and contrast the principal features in the geography of the plateaux of Anatolia, Irania, and Afghanistan.

CHAPTER VII

INDIA: GENERAL ACCOUNT

INDIA,¹ with an area of 1,575,000 square miles, is about thirteen times the size of the British Isles, and its population of 338,171,000 forms more than one-sixth of mankind. Because of its size, its isolation from the rest of Asia, and the complexity of its peoples India is often called a 'sub-continent.' India is entirely within the Northern Hemisphere, Cape Comorin, the most southerly point of the mainland, being 8° N. of the equator. The Tropic of Cancer cuts through the northern part of Peninsular India, leaving approximately half the country within the tropics.

THE PEOPLES AND THEIR HISTORY

The Dravidians² are found chiefly in Southern India, and in the jungles of the Dekkan and Ceylon there are still more primitive people, representing the very earliest inhabitants of all, sometimes called Pre-Dravidian. In North-eastern India, as in Burma, there is a considerable Mongol element. But the chief racial element is the Indo-European, or Caucasian, race, to which most European peoples belong. The mountain-wall on the north of India is a most effective barrier against contact with the rest of Asia, but in the north-west there are certain passes giving easy access to the plains of Northern India. Of these the most important is the Khyber Pass, the chief route by which at least eight important waves of invaders have entered India. Indo-European peoples first came into the northern plains over four thousand years ago. During the six centuries 2000-1400 B.C. these invaders

¹ Burma is now separated from India. See p. 245.

² See p. 67.

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developed in the Punjab the civilization and religion that still characterize the Hindu peoples. Extending their settlements into the Ganges plain in the succeeding six centuries (1400–800 B.C.), they devised the caste system, possibly to prevent intermixture with the inferior Dravidian inhabitants. Later still the Hindus spread southward into Peninsular India. During this period, however, the country was divided into a large number of small states, and it was not until 322 B.C. that any great state was set up. In that year the great leader Chandragupta Maurya founded a Hindu empire, centred upon Patna, which endured until 184 B.C. Darius I (reigned 521–485 B.C.) had extended the eastern boundary of the great Persian Empire to the Indus, and in 326 B.C. Alexander the Great, having brought his army through the difficult passes of the Hindu Kush, made himself master of the Punjab. But the conquests of Darius and Alexander did not endure, and they had little influence upon India. During the centuries that followed Tartar peoples from the steppes of Central Asia penetrated from the north-west, but not until the days of the great Mogul Empire did they control any considerable area in India. The Mogul Empire was established in the sixteenth century, the conquerors being Mohammedans. The two greatest Mogul emperors were Akbar (1542–1605) and Aurangzeb (1619–1707), who controlled the greater part of India from their capital of Delhi. On the death of Aurangzeb the Mogul Empire began to break up, and India fell into a state of anarchy. The constant rivalries of the various Indian states made possible the interference of Western Powers such as France and Britain.

The early invaders of India approached by land from the north-west, and owing to the forested Vindhya Hills their influence was largely confined to the great northern plains. The arrival of Vasco da Gama at Calicut in 1498 opened an entirely new chapter in Indian history. The sea had ceased to be a barrier, but had become a highway

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of approach for Europeans. The Portuguese were soon followed by the Dutch, English, and French, all intent upon profitable trade with India. The English East India Company, by permission of the native ruler, in 1612 established its first 'factory' at Surat, on the west coast, north of Bombay. Other trading-posts were set up in Madras (1639), Bombay (1661), and Calcutta (1690). Robert Clive's victory over the Nabob of Bengal at Plassey in 1757 marked the beginning of British supremacy over the French, as it gave the East India Company complete control of Bengal, with all its great resources, and paved the way for British sovereignty in India, which was definitely assured by 1818.

RELIGIONS

There are many religions in India, but the great majority of the people are either Hindus or Moham-medans. More than two-thirds of the population are Hindus. Hinduism, one of the great religions of the world, is a rule of life that has grown up through many centuries, absorbing and changing more primitive religions. In consequence beliefs and practices vary widely in different parts of India. Some Hindus worship many gods, but there is widespread belief in one Supreme Deity, manifested as the trinity of Brahma, the creator, Siva, the god of energy and creation, and Vishnu, the god of preservation and repose. The majority believe in *karma*: that the fate of the soul is determined by its actions in this life, that the soul is reborn again and again into conditions determined by its previous life, and that the chief aim of man should be to achieve *mukti*—the freedom to live in Paradise without enduring further lives on this earth. The Hindus are fatalists, believing that everything happens in accordance with divine laws and plans. The cow is a divine animal that must be neither killed nor eaten. Indeed, most Hindus are strict vegetarians. To

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its followers Hinduism is an all-important and vital religion, for it touches and regulates every aspect of daily life, including the home, occupation, medicine, law, and art. Perhaps the most distinctive feature of Hinduism is the caste system, in which there were originally four

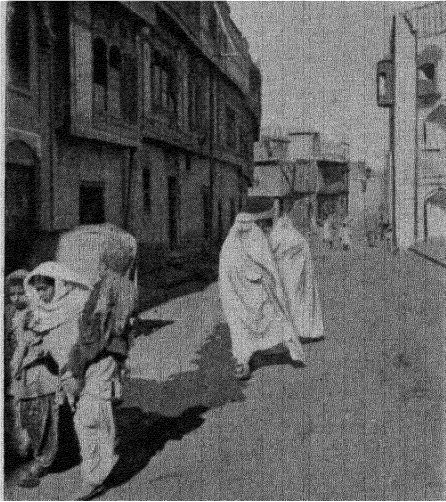


FIG. 30. STREET IN PESHAWAR CITY, NORTH-WEST FRONTIER PROVINCE

Note the glaring light and deep shadow and the equally strong contrast in the people. There are three Mohammedan women, of whom two are veiled. The third, in the left foreground, is carrying a heavy load on her back and a child on her hip, and she has her face uncovered. The wearing of a veil is by no means universal among Indian women.

By courtesy of C. D. Draycott, Esq.

main groups. The Brahmins formed the highest caste: every priest is a Brahmin, and other Brahmins hold high positions in the learned professions. Next came the warrior caste; then the caste of traders and farmers. Finally, the fourth great group was the Sudra caste, consisting of all the rest of the population, destined to serve all those of the higher castes. This four-fold division has gradually been subdivided, until there are now over

two thousand castes. Every Hindu belongs to the caste of his parents; he must not marry outside his own caste; and in many cases he must follow the occupation of his father. The caste system thus provides a means of livelihood; it produces hereditary skill; it gives a spirit of mutual help among the members of the caste. Nevertheless the caste

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system has been a stumbling-block in the way of progress. At the lowest end of the scale of castes are the 'untouchables,' or 'depressed classes,' completely shut off from all other Hindus, who will hold no intercourse with them or even admit them to the ordinary temples. In general the untouchables are dreadfully poor and quite uneducated, and many are engaged in such despised occupations as scavenging or leather-working. The untouchables comprise nearly 30 per cent. of the Hindus.

The caste system, however, is weakening. In mills and mines workers of different castes are working side by side; in train and tram they must travel together. Co-operative societies in the villages tend to break down caste barriers, and many Hindu leaders are seeking to remove untouchability, if not, indeed, to abolish the whole caste system. Mr Gandhi,¹ one of the greatest leaders in history, has for many years worked unceasingly for the untouchables. Christian missions—above all, perhaps, the Salvation Army—are doing great work in giving hope and a new dignity to the depressed classes.

Some of the invaders of North-west India brought the Mohammedan religion and culture. Many splendid monuments of Mogul architecture are reminders of the great Mohammedan empires in India. The Moslem religion (Islam) is based on a creed—"There is one God, Allah, and Mohammed is His Prophet"—and a book—the Koran—written by the Prophet himself in the sixth century. In India there are three times as many Hindus as Moslems, but the latter are found in most parts of the country, and in certain regions (Bengal, the Punjab, the North-west Frontier Province, Sind, Baluchistan, and Kashmir) they are in a majority. Although many poor, illiterate Moslems mingle Hindu beliefs and customs with their religion, there is a profound difference between Moslems and Hindus in beliefs, practices, outlook, and,

¹ Mr Gandhi is called Mahatma—*i.e.*, 'Great Soul'—a reference to his undoubted purity of life and his importance as a religious leader.

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very often, in race. Religious antagonism between these two peoples is probably the chief stumbling-block in the way of more rapid national progress and the development of self-government. Occasionally serious fighting begins as the result of religious differences, and the British authorities sometimes have difficulty in restoring order.

Gautama, the Buddha¹ was a great Hindu teacher who lived in the middle Ganges plain about 557-477 B.C. The Buddha taught

that the secret of happiness lies in the conquest of self; that the way of life is the way of holiness; that the forms of religious ritual are as nothing when compared with inward purity; that the power of priests is vanity, and that the goal of existence is that perfect extinction of passion which is Nirvana.²

Buddhists thus tend to lead a quiet, gentle life, free from strife and passion. Buddhism was almost swept out of India itself by the Mohammedan conquerors, but it persists in Burma, Ceylon, Tibet, China, and Japan.

Jainism, which originated in Bihar about the same period as Buddhism, has many points in common with Hinduism. The majority of Jains are in the Bombay states and Rajputana. The Sikhs live almost entirely in the Punjab. Their religion is a purified form of Hinduism, believing in one God and rejecting pilgrimages and the worship of idols. Oppression by Moslems and Hindus has converted the Sikhs into a vigorous military people. The Parsis, living mainly in Bombay City, are a small but very prosperous community, whose ancestors were driven from Iran by the Mohammedan conquerors. They believe in one God, and regard fire as especially holy.

A Christian Church has existed in India for over fifteen

¹ Buddha = 'Wise' or 'Enlightened.'

² Professor F. J. C. Hearnshaw, *World History* (Macmillan).

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hundred years, but only in the last fifty years has there been such rapid progress that Christianity is now the third largest religious body in India. One cannot speak too highly of Christian religious, medical, and educational work, especially among the depressed classes.

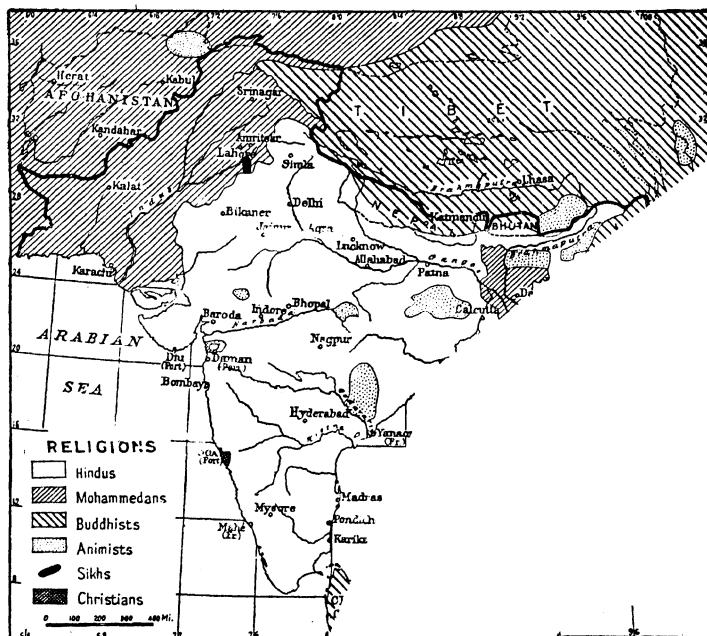


FIG. 31. RELIGION

From "The New World: Problems of World Geography," by Isaiah Bowman (The World Book Company, Yonkers-on-Hudson, N.Y.)

and George G. Harp & Co., Ltd., London)

The following table shows the numbers of believers in the various religions in millions:

Hindus	239·195	Buddhists	·439
Moslems	77·677	Parsis	·109
Christians	6·297	Jews	·024
Sikhs	4·336	Animists	8·280
Jains	1·252	Others	·571

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LANGUAGES

The languages of India are even more complex than the religions. The commonest language is Hindustani. This has two forms, Urdu and Hindi, which have many resemblances in actual speech. Urdu was the form used by the Mohammedan invaders, and most modern Moslems prefer to use Arabic script and to employ words of Iranian origin. Hindi, the form common to most Hindus, employs Sanskrit script and many words derived from Sanskrit. Millions of Indians, however, have no knowledge of Hindustani. In the southern half of Peninsular India, in the northern half of Ceylon, and in certain isolated areas of central India and Baluchistan the people speak various languages—Telugu, Tamil, Kanarese, Malayalam, and others, which have no relationship to Hindustani. Of great importance are Bengali, Marathi, Punjabi, and Sindhi. In all well over 200 languages are spoken in India, and a man at a great distance from his home might not be able to communicate with his fellow-countrymen. The official language in India is undoubtedly Hindustani, though the language common to all educated people is English, for official purposes, and is the Indian Provincial and District language. But it is necessary to emphasize that only 2,000 people speak English in India, and that only a very small portion of India's population. In all about 3,600,000 people have some knowledge of English.

BRITISH RULE IN INDIA

The future of India holds some of the chief problems of to-day—problems that must be studied with sympathy and understanding by all British citizens. During the century that followed the battle of Plassey the East India Company gradually lost its valuable monopolies, and

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after the tragic period of the Indian Mutiny of 1857 the British Government took over full control of the Indian territories formerly held by the Company. Britain thus became responsible for the maintenance of order and good government in India. The British went to India not for conquest, but for trade, and India is still the most important country trading with Britain. This trade has been valuable to India as well as Britain. British rule has also brought to India the blessing of peace, in marked contrast with the almost perpetual state of warfare and anarchy that once prevailed. Britain has acted as an impartial judge in religious or other disputes in India, and to preserve the Indians from assaults of enemies on the North-west Frontier and elsewhere she has maintained strong military forces. The making of railways and roads and the construction of irrigation-works have practically removed the danger of famine, which in the past has brought death to millions. Improvements in sanitation, medical services, and education have also brought great benefit to India. Nevertheless many Indians are dissatisfied with the results of British rule in India, and they consider that there has been little improvement—if at all in the conditions of life for the vast majority of Indians. Above all their aim is to secure complete self-government immediately. Britain intends to satisfy this aspiration and has recently taken a great step towards it.

On August 20, 1917, Mr E. S. Montagu, Secretary of State for India, made the following statement:

The policy of His Majesty's Government of India are in accordance with the increasing association of Indians in every branch of administration and the gradual introduction of representative institutions with a view to the development of responsible government in the British Empire. The steps in this direction since 1909 are as follows:—
... I would add that pr

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achieved by successive stages. The British Government and the Government of India, on whom the responsibility lies for the welfare and advancement of the Indian peoples, must be judges of the time and measure of each advance, and they must be guided by the co-operation received from those upon whom new opportunities of service will thus be conferred, and by the extent to which it is found that confidence can be reposed in their sense of responsibility.

Progress towards complete self-government may be rather slow, in view of the many difficulties encountered. The vast areas, huge populations, and great diversities of race, language, religion, and culture have already been mentioned. In England and Wales four-fifths of the people live in towns, but in India nearly three-fourths of the people are farmers, living in small villages, while less than one-fifth are engaged in industry, trade, transport, and Government services. Relative to its population India has very few large towns. Most of its 500,000 villages are untouched by railways or metalled roads. Each village tends to be self-contained, the ryots (peasants) living in mud or bamboo houses clustered together in the midst of the fields, where crops are grown almost exclusively for the villagers themselves. Usually the rainy season permits cultivation for only a few months, and the ryot's land is so small¹ (perhaps less than five acres) that he is so primitive that he finds it very difficult to support his family. Indeed, many Indians suffer from partial starvation, and the vast indebtedness to the village moneylender. Indians cannot read or write. Lack of rainfall and irrigation, the heavy payment of rent and taxes, and the care of their children. The change, and it is difficult to say whether the transfer of the farms is mainly due to the previous owner. The same is true of French of Quebec Province.

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cult to arouse and maintain their interest in national as distinct from local affairs; yet the village community must form the basis of any system of self-government.

In 1919 the British Parliament passed the Government of India Act, in order to put into effect the schemes outlined by Mr Montagu. The first elections were held in 1920, the franchise being based on taxation. Only about 10 per cent. of the men and under 1 per cent. of the women can vote in the provinces. Unfortunately during tragic rioting in the Punjab in 1919 troops fired on a crowd at Amritsar, killing 379 and wounding 1200, so that intense bitterness was aroused towards Great Britain, and Mr Gandhi's followers refused to vote in the first elections. In recent years, however, much useful work has been done in the Indian legislature.

With regard to the present system of government in India there are some points that merit attention—above all, the fact that there is a twofold division into British India and the native states. British India—that is, the regions directly under British rule—constitutes two-thirds of the country, and contains over three-fourths of the total population. British India is made up of nine major provinces, each ruled by a Governor and Legislative Council (mainly of elected members), and six minor provinces, each governed by a Chief Commissioner. The nine major provinces, in order of size, are Madras, Bombay, the Punjab, the United Provinces, the Central Provinces, Bihar and Orissa, Bengal, Assam, and North-west Frontier Province. The six minor provinces are Ajmer-Merwara, Coorg, Baluchistan, Delhi, Aden, and the Andaman and Nicobar Islands. The native states, nearly 600 in number, vary in size from Kashmir or Hyderabad, almost as large as Great Britain, to tiny states of a few acres. The native rulers (maharajahs, rajahs, etc.) have complete control of their own territories, but they all acknowledge the British King as Emperor of India, and in cases of misgovernment the Imperial Government may interfere. In

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1921 a Chamber of Princes was established to assist in matters affecting India as a whole. The nine major provinces of British India have control of their own local affairs, including health and sanitation, education, agricul-

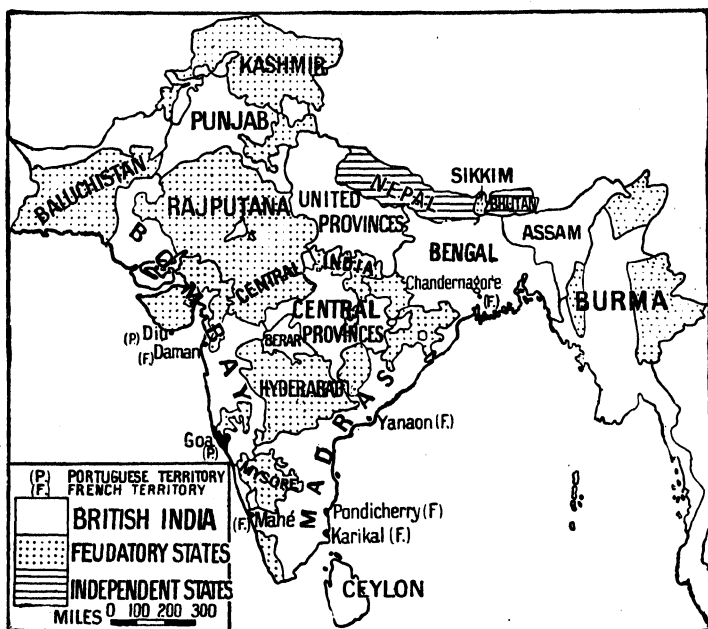


FIG. 32. POLITICAL DIVISIONS OF INDIA

Note that Burma is not now an Indian province.

ture and fisheries, co-operative societies, and industrial development.

In 1928 and 1929 a special commission, headed by Sir John Simon, paid two visits to India, in order to study the problems involved in taking the next steps towards a still larger measure of self-government. There have since been meetings of a Round Table Conference in London, where British and Indian delegates have dis-

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cussed the same problems, and the British Parliament has now passed an Act embodying its decisions. This Act of 1935 proposes an All-India Federation comprising the provinces of British India and the native Indian states. The units in this federation are to be self-governing, but each province is to have a Governor armed with special powers to maintain order in emergencies and to safeguard minorities. The Federal Government at New Delhi is to consist of an Upper and a Lower House composed of members indirectly elected by the provinces and representatives nominated by the native states. This central Government is to deal with matters affecting India as a whole, such as currency and tariffs. But the British Governor-General is to have direct control over defence, foreign affairs, the maintenance of financial stability, and the safeguarding of the interests of minorities and of Indian states. Burma is to be separated from India, and a trade agreement drawn up between the two countries.

Given the sympathetic co-operation of the Indian people, Britain will fulfil her pledge, and India will become another great self-governing member of the British Commonwealth. India has a great part to play in world progress as the natural link between the civilizations of West and East.

In view of the important part played by the British in India their numbers are surprisingly small. Of nearly 1,500,000 in Government service only 12,000 are British, and of these only 3500 are in the more responsible posts. There are also 57,600 British soldiers—a small force considering their tasks of defending the north-west frontier and maintaining general law and order, although they are assisted by 166,600 Indian troops. The other British peoples in India are chiefly those engaged in business—tea-, coffee-, or rubber-planting, shipping, etc.—and missionaries carrying on religious, medical, educational, and social work of inestimable value.

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RELIEF AND RIVERS

The relief map shows clearly the three physical divisions of India—the northern mountain-wall, the plain of Hindustan, and the Dekkan plateau.

The northern mountain-wall forms an immense natural boundary, with at least two parallel chains of folded mountains throughout the greater part of its length, and is sufficiently lofty to form an important climatic barrier. On the west the Kirthar and Sulaiman Mountains form the eastern boundary of Baluchistan, which is included in India for political purposes. On the north are the still loftier Hindu Kush and the mighty Himalayas, stretching for 1500 miles in a great, sweeping curve. At the eastern end of the Himalayas the east and west direction of the mountain-folds changes abruptly into north and south, the ranges having various names, such as Patkai Hills and Arakan Mountains. The Khasi Hills are an important western projection in Assam. To get beyond the mountain-wall only three routes are in any sense easy—along the Makran Coast of Baluchistan and Iran, through the Bolan Pass to Quetta, and—most important of all—through the Khyber Pass to Kabul. Three routes of much greater difficulty are those of the Dorah Pass, through the Hindu Kush, from the Punjab to Russian Turkestan; the Karakoram Pass from Kashmir to Chinese Turkestan; and the Chumbi valley from Darjeeling to Tibet. There are also other routes of exceptional difficulty.

The plain of Hindustan, or the Indo-Gangetic plain, runs in a broad belt, over 2000 miles long and between 150 and 300 miles wide, parallel to the northern mountains, which in general rise rather steeply from the low-lying, monotonously flat plains. The many rivers have brought down from the surrounding mountains immense volumes of fine alluvial soils, extremely fertile and devoid of stones, which cover the entire surface of these plains. The Indus and its great tributary the Sutlej both rise

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near the San-po on the north side of the Himalayas, and form the outer streams of the Punjab, or 'Land of Five Rivers,' through which flow the Jhelum, Chenab, Ravi, and Beas. In the case of the Ganges the main stream is

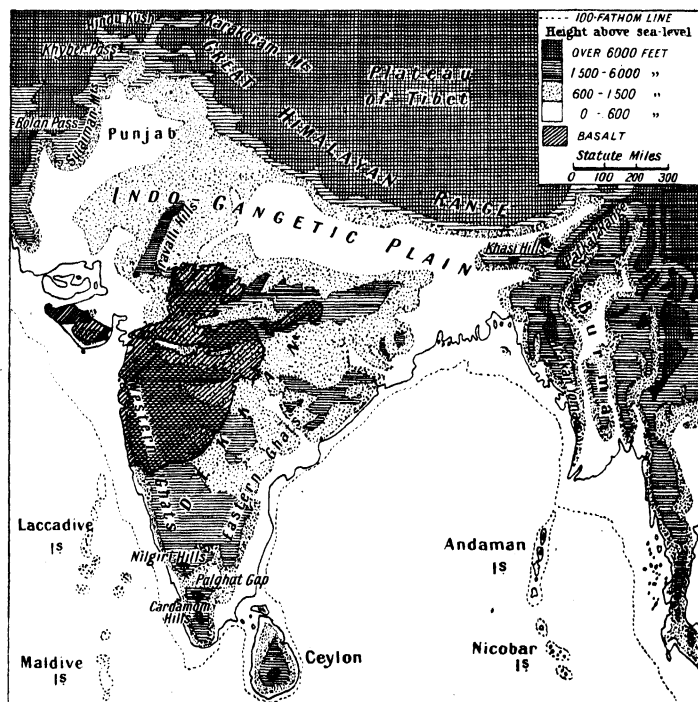


FIG. 33. RELIEF OF INDIA, BURMA, AND CEYLON

driven nearer the Dekkan by the strength of the Himalayan rivers, the chief of which are the Jumna, the Ganges itself, the Gumti, and the Gogra. The chief southern tributaries are the Chambal, Betwa, and Son.

The Dekkan plateau, roughly triangular in shape, has a general eastward slope from its high, steep western edge

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of the Western Ghats, mostly over 3000 feet high, to the less formidable barrier of the Eastern Ghats. It is built of ancient crystalline rocks, with newer sandstones and volcanic outpourings in places. The Palghat Gap, between the Nilgiri and Cardamom Hills, in the far south, is important as an easy west and east route across the peninsula. The long eastward-flowing rivers—Mahanadi, Godavari, Kistna, and Cauvery—give access by their deeply cut valleys to the plateau from the Coromandel and Golkonda Coasts, where their deltas are increasing the area of coastal plain. In the wet season these Dekkan rivers have a full flow, but in the dry season they almost disappear, and their value for irrigation is greatly diminished. South of the Tapti river the Western Ghats are unbroken by any river, but numerous short mountain torrents tumble down to the Arabian Sea. Most of the Dekkan is composed of ancient crystalline rocks, such as granite. The great basalt plateau of the north-western part of the Dekkan has considerably altered the drainage, so that two long rivers, the Narbada and Tapti, find their way westward through deep valleys to the Gulf of Cambay. The northern section of the Dekkan is crossed by a series of east and west densely forested ranges, notably the Satpura and Vindhya, which are continued eastward by other ranges, thus forming an effective barrier to possible invaders from the north. This explains the preponderance of Dravidian peoples in Southern India. In the extreme north-west the plateau rises to the Aravalli Hills, overlooking the Thar Desert.

CLIMATE

One expects to find wide variations in climatic conditions in so vast a country as India, and in rainfall particularly such variations are important. The Khasi Hills give the highest recorded rainfall, while at the other end of the scale the Thar Desert has less than five inches

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per annum. Yet the monsoonal character of the Indian climate gives a definite unity. Four seasons may be distinguished: (1) the cold-weather season (January and February), (2) the hot-weather season (March to mid-June), (3) the season of general rains (mid-June to mid-September), (4) the season of retreating monsoon (mid-September to December).

The Cold-weather Season. January is the typical month. The great mountain-wall completely shuts out the bitterly cold winds of Central Asia. The sun is shining vertically at noon in the Southern Hemisphere, near the Tropic of Capricorn. India has been steadily cooling down, and in the far north the mean January temperature is about 50° F. There is a steady increase in temperature as one goes south, the extreme south approaching 80° F. Over the greater part of India the cold weather is welcomed by Europeans, although it is less congenial to the poorly clad and perhaps underfed Indian peasant.

The temperature distribution explains the gradual fall in atmospheric pressure from north to south. South of the equator the higher temperatures give rise to the low-pressure belt of the Doldrums, towards which winds blow from India. From the relatively high pressure area of the north-west dry winds blow gently down the Ganges valley. Over the Bay of Bengal these north-westerly winds become the north-east monsoon winds, which pick up moisture and give considerable rainfall to Ceylon.

The North-west Frontier Province and the Punjab receive light rains—of great value to the winter crops of wheat and barley—from weak cyclonic storms that have drifted across from the Mediterranean.

The Hot-weather Season. This begins in March, and with the northward movement of the vertical sun there is a rapid rise in temperature, with a consequent expansion of the air and a decrease in atmospheric pressure. In May the heat is very oppressive, especially in the

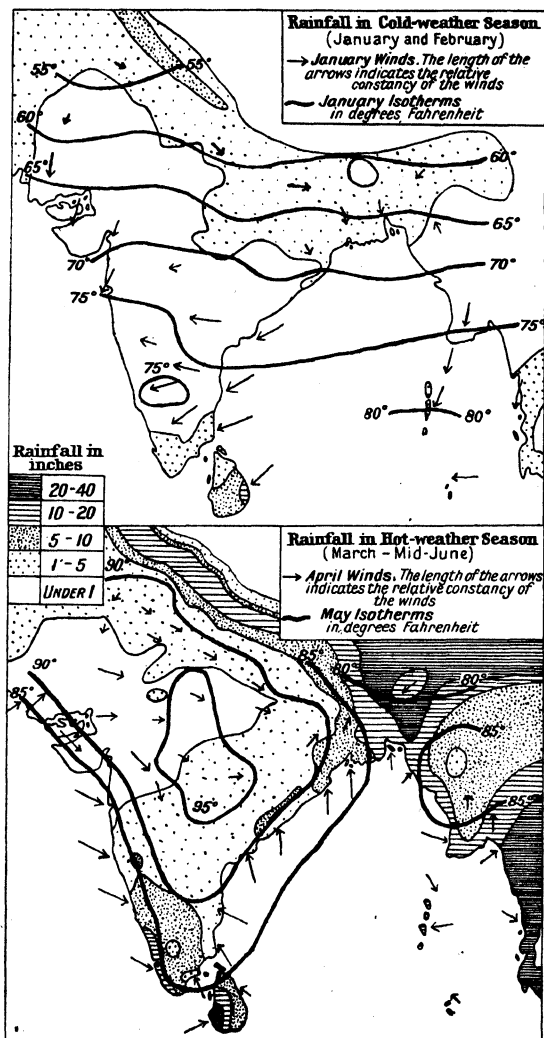


FIG. 34. RAINFALL IN INDIA, BURMA, AND CEYLON: JANUARY TO MID-JUNE

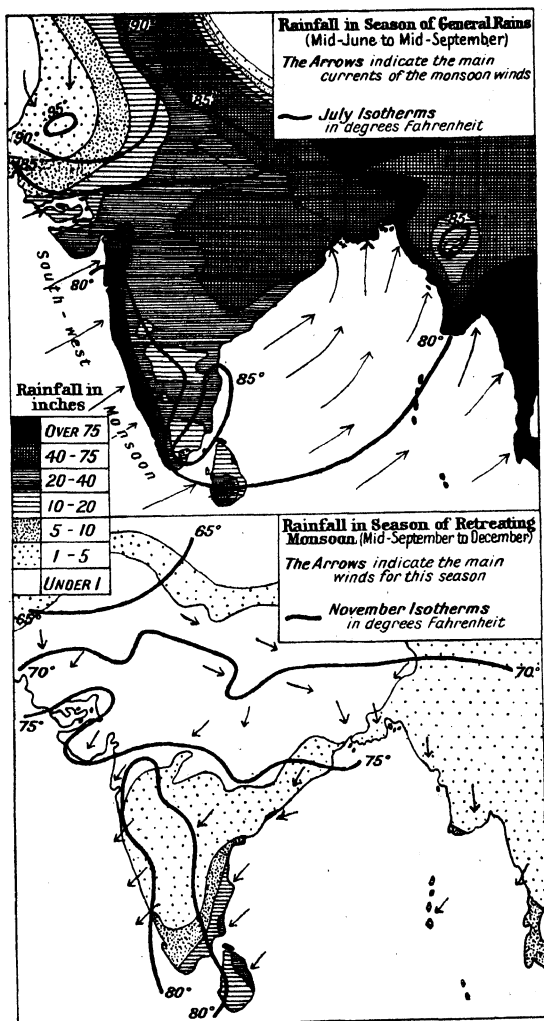


FIG. 35. RAINFALL IN INDIA, BURMA, AND CEYLON: MID-JUNE TO DECEMBER

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extremely dry air ¹ and cloudless skies of the northern plains, where the mean daily temperature is generally well over 90° F. The daily temperature may reach 120° F., and although the nights may be 25° or 30° less they are uncomfortably hot. Work of any kind is almost impossible in the daytime. All vegetation is burned up, and a pale sun shines through a greyish dust-haze. In the south, and especially in Ceylon, the mean daily temperature is about 10° lower, the days being cooler and the nights warmer than in the north. The air in the south is moist, and there is considerable rainfall, chiefly from thunderstorms. Similar conditions are experienced in April and May in Assam, but elsewhere intensely hot and dry weather prevails. Occasional storms occur in the northern plains, dry, whirling dust-storms in the west and rain-storms in the east (Assam, Bengal). Tornadoes sometimes do great damage, and tropical cyclones, similar to the hurricanes of the West Indies, occur in the south of the Bay of Bengal.

The Season of General Rains. By the middle of June the maximum temperatures are reached in the northern plains, and the atmospheric pressure has become so low compared with that of the South Indian Ocean that with great suddenness strong winds set in from sea to land, bringing dense clouds and torrential rains, accompanied by crashing thunder and vivid lightning and, on the seas, by tropical cyclones. This is the 'bursting' of the summer monsoon, the herald of three months of moist air and rainfall. The coming of the rains causes a welcome fall in temperature, and the beautiful green of plant life is restored. The south-east trades have crossed the equator, and by deflection due to the earth's rotation have become south-west winds, blowing towards the belt of very low pressure in North-west India. Over Peninsular India and Ceylon the summer monsoon is a south-west wind; on the Ganges plain it swerves round to blow from the south-east and east, making for the low-pressure area of the

¹ The relative humidity may be only 1 or 2 per cent.

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north-west, directed thither by the mountain-wall to the north. By July the monsoon has reached the Punjab, and the whole of India is under its influence. The winds weaken and stop towards the end of September in the north-west, and during October elsewhere. The south-west winds, driven upward by the Western Ghats, expand, cool, and give exceptionally heavy rainfall. The Dekkan beyond the Western Ghats is much drier, as the winds descend and are warmed by compression. These facts are well shown in the following figures of mean rainfall for July: Bombay 27·3 inches, Mahabaleshwar (high up on the Ghats) 106 inches, Poona (on the plateau) 7·2 inches.

The moisture-laden winds of the Bay of Bengal enter the enclosed corridor of the northern plains, where the barriers of surrounding mountains cause a general uplifting of the atmosphere, producing widespread heavy rains. The rainfall naturally diminishes in a north-westerly direction, as shown by the following figures of July rainfall (in inches): Calcutta 12·1, Allahabad 11·4, Delhi 7·6, Lahore 5·1, Peshawar 1·2. The Himalayan slopes receive heavy rains, especially on their eastern section, Darjeeling, for example, having 32·3 inches in July. The Khasi Hills, rising abruptly from the plains, receive the full blast of the monsoon winds, so that Cherrapunji has the greatest recorded mean annual rainfall of 427·8 inches, coming almost wholly in the eight months from March to October, the wettest month, July, having an average of 98·2 inches.

Over the greater part of India the summer monsoon brings heavy downpours, broken by irregular spells of fine but cloudy weather. The hot air is so heavily charged with moisture that woodwork swells, making it difficult to shut doors and windows, leather is coated with fungus, books and papers go mouldy and rot, and it becomes necessary to light fires to dry clothing and bedding. The abnormally heavy rains quickly fill the rivers and cause extensive floods. In Eastern Bengal, for example, the whole land is under water, the villages standing up like

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islands, built on mounds raised artificially above the normal flood-level, and crops of rice and jute project their bright green above the surface of the waters.

The plains of the Indus are remarkably dry, despite the fact that they lie in the region of lowest pressure, where there are strong ascending air-currents. Sind lies north of the rain-bearing winds that blow so strongly on to Peninsular India, while the winds reaching the Punjab from the south-east have lost most of their moisture. Winds approaching from westerly points have come from the arid plateau of Irania, and have been made still drier in descending to the plains. Finally, an exceptionally dry current from the west crosses the Indus plains at about 3000 feet up, greatly reducing the likelihood of rain from the rising air-currents. Jacobabad, in Sind, has the lowest recorded annual rainfall in India—only four inches. Rainfall in these arid regions usually comes in heavy downpours, possibly causing disastrous floods, the normal weather for months being hot and absolutely dry.

The Season of the Retreating Monsoon. During October the monsoon winds weaken in the northern plains, the rains diminish, the air becomes hot and clammy, and the land is still waterlogged. In November and December the south-west monsoon winds gradually retreat southward, and in the Bay of Bengal they curve round to blow on the Madras coast, which has its rainy season at this time. Ceylon also has rain from the retreating monsoon. Tropical cyclones add to the rainfall of the coasts of Madras and Bengal, and sometimes are destructively violent. Land winds begin to blow in the rear of the retreating monsoon, and gradually extend over the Bay of Bengal and Arabian Sea.

Annual Rainfall. The annual rainfall map (Fig. 10) shows that almost the whole of India has considerable rainfall at some part of the year, but there are naturally great variations in the amounts received from year to year. Rainfall below the average is likely to lead to serious

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crop failure and famine in densely peopled regions of rather moderate rainfall, notably Sind, the United Provinces, the Dekkan plateau, and the Punjab.

NATURAL VEGETATION

The very wet regions, such as the Western Ghats, Assam, Eastern Bengal, and the Andaman Islands, with an annual rainfall exceeding 80 inches, support forests of equatorial type, densely crowded with trees of great variety, interlaced with climbing plants and with mangrove swamps along the coasts. The resources of these forests are not much exhausted.

Monsoon forests of deciduous trees which shed their leaves in autumn, are found mainly in the extensive region of rainfall of 40 to 80 inches. The chief trees are the teak and the western side of the Himalayan slopes and foothills. The variety of trees are teak, so common in the East India ships; ironwood, used for building, an evergreen, sweetgum, a sal, a hard, durable timber. There are also in these regions vast forests of bamboos.

In the drier parts of the Dekkan there are extensive grasslands, with small, long-rooted, drought-resisting trees, such as acacias.

Most of the Indus plain is desert-like, owing to the scanty rainfall, and the chief plants are stunted bushes, with thorny or fleshy stems.

The Himalayan region is remarkable for the luxuriance and variety of its vegetation, which naturally varies with height, as shown in Fig. 36. The foothills rise from a swampy, malarial region of tangled jungle known as the Terai, the haunt of the tiger, rhinoceros, elephant, panther, and mosquito. The mountain-slopes up to about 3000 feet are covered with tropical forests of sal, teak,

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bamboos, palms, ferns, and orchids. With increasing elevation there are forests of warm, temperate type, including magnolias, oaks, laurels, maples, and chestnuts, followed by cool temperate trees, such as fir, spruce, pine, birch, and cedar. Beyond 12,000 feet the trees thin out and give place to an Alpine region of rhododendrons, mosses, and grasses. The snow-line on the southern side of the Himalayas is about 16,000 feet, and from the extensive snowfields glaciers descend far into the Alpine

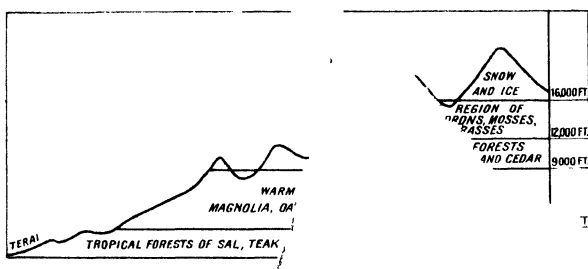


FIG. 36 DIAGRAMMATIC
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region. There is a well-defined transition from the excessively wet eastern section of the Himalayan belt, with its Malayan types of plants, and the drier western section, where European types are more numerous.

Forests cover about one-fourth of India, and timbers, such as teak, ebony, rosewood, and sandalwood, are exported. Other forest products exported are lac and cutch.¹ Lac is a dark-red transparent resin deposited on the twigs of trees by small insects that have extracted it from the sap; it is used in dyeing. India has a virtual monopoly in lac production. But the value of exported timber products is insignificant compared with the enormous value of forest products consumed in India itself in railway and other construction works and in the normal

¹ See p. 250.

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life of the people. Timber, bamboo, and palm-leaves are used in house construction. Wood enters into the making of oil-mills and rice-mills, carts, ploughs, and fences, while millions of cattle graze in the forests.

AGRICULTURE

Agriculture is overwhelmingly important in India, for all but a small minority are directly dependent upon farming. About 40 per cent. of the land is under cultivation, three-fourths of the acreage being under cereals. Roughly one-quarter of the acreage is under rice, one-fifth under millet, and one-tenth under wheat. In yield per acre nearly all Indian crops fall well below the average of other parts of the world. In view of the favourable climatic and soil conditions this fact is surprising, but it is largely explained by the exhaustion of soils, animal and oil-seed manure rarely being used; while the extreme smallness of many farms and the poverty of the peasants are contributory causes.

Rice is the chief grain crop of the plains in the monsoon lands of Asia. There are many varieties of rice, but those most widely grown require a high summer temperature, and have to be grown in fields that can be periodically flooded. The flat alluvial plains and deltas of India are thus ideal for rice as a summer crop, provided sufficient water is available, from rainfall, rivers, or artificial irrigation. Rice still covered with the husk is known as paddy, and the paddy-fields where the crop is grown are level stretches surrounded by embankments to hold in the water when necessary. In hilly country, such as the Western Ghats, the slopes are carefully terraced to provide paddy-fields. The grain is planted in small nursery fields towards the end of the rainy season, and when about six inches high the plants are transplanted by hand into the sodd^e paddy-fields, which have been ploughed with a primi^l wooden plough drawn by two water-buffaloes or '

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Aided by an increasingly deeper flood, the rice grows rapidly, perhaps even nine inches in twenty-four hours. The water is reduced as the grain ripens, and the crop is harvested by hand. By using different varieties of rice it is possible under the most favourable conditions to obtain four or five crops in a year. In Bengal two crops are common, but in India as a whole the restricted rainy



FIG. 37. TRANSPLANTING RICE IN SOUTHERN INDIA

The majority of the workers are women. Note the low embankments and the flat nature of the land.

By courtesy of the High Commissioner for India

season permits of one crop only. Rice compares unfavourably with wheat in the labour required for its growth, in yield per acre, and in food-value, although it is the staple food of millions of people in India. Apart from a small export of high-quality rice from the Patna district, almost the whole of India's crop is consumed in the country.

Millet, of which three chief varieties are grown, ranks to rice as a food crop in India. As it requires much

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less water than rice millet is the staple food in most of the drier parts of India, and none is exported.

Wheat, which now tends to displace millet in regions with suitable soil, is the most valuable grain of temperate climates. Moderately stiff soils containing clay are best for wheat, which requires a cool, moist growing season, followed by a rather dry, sunny season for ripening and



FIG. 38. CATTLE THRESHING RICE IN SOUTHERN INDIA

The cattle are made to trample on the rice in order to separate the grain from the straw. Note the simple dress of the men.

By courtesy of the High Commissioner for India

harvesting. Thus, in the drier parts of Northern India, notably in the irrigated land of the Punjab, in the United Provinces, and in the north-western section of the Dekkan, wheat is grown as a winter crop, sown after the rainy season, and harvested before the hot-weather season. Wheat is becoming more important as a staple food in Northern India, a variable surplus being available for export to Great Britain. Barley is an important crop in the wheat areas of India. Maize is another crop grown

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in regions of moderate rainfall for human and animal food. Chick-peas and other pulses are extensively grown for the same purposes.

Sugar-cane requires climatic and soil conditions similar to those for rice. It is widely grown in India, but above all in the upper Ganges plain and the Punjab. Although

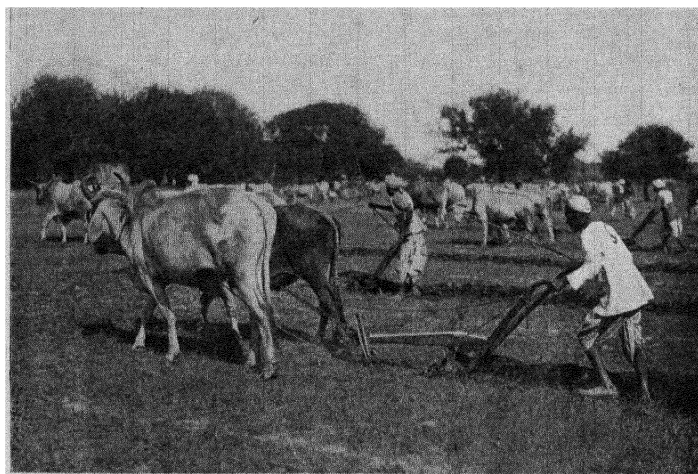


FIG. 39. PLOUGHING FIELDS FOR PLANTING SUGAR-CANE

Note the wooden plough and the humped cattle. These animals are used also for pulling lorries or carts laden with bales of cotton.

By courtesy of the High Commissioner for India

about 5,000,000 tons of raw sugar are produced annually, it is necessary to import huge quantities, chiefly from Java. There is room for great expansion in sugar production in India.

Spices, which formed such important items in early European trade, are still produced in considerable quantities, the export trade being mainly to Britain. Pepper is derived from the berries of a climbing plant, grown up tree-trunks on the Malabar Coast. Chillies (the small red

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pods used in pickling), ginger (the dried root-stock of a tropical plant), cloves (the dried flower-buds of the clove-tree), and nutmegs (the kernel of the fruit of another tropical tree) are other spices grown in Peninsular India.

Fruits, such as the mango, coconut, banana, lime, and custard-apple, and vegetables, such as potatoes, sweet potatoes, onions, tomatoes, cabbages, and turnips, are grown widely as additional foods.

Cotton is an important crop in the drier parts of India, the total production ranking second to that of the United States. The average annual Indian output is about half that of North America. The great Indian population requires a huge amount of cotton cloth, and India is still the greatest market for Lancashire cotton goods. The development of cotton manufactures in India, however, has reduced the quantity of cloth imported, and India's exports of raw cotton now exceed in value her imports of cloth. The chief regions for cotton-growing in India are: (i) the Dekkan, especially the north-west, where the black volcanic soil is extremely fertile and has the capacity of retaining moisture—a point of great importance, owing to the light rainfall; (ii) the United Provinces and Indus plains, especially the Punjab and Sind, all regions in which irrigation is necessary.

Indian cotton is generally of short staple, the fibres being $\frac{1}{2}$ to $\frac{7}{8}$ of an inch, as compared with one inch or more of American cotton, and is thus unsuited to the main classes of goods made in Lancashire. Indian raw-cotton exports are chiefly to Japan, China, Italy, Belgium, Germany, and France. Government attempts to improve the quality and yield of Indian cotton have met with some success: Cambodia cotton of long staple from Indo-China gives a high yield in the extreme south of the Dekkan, Egyptian cotton grows well in Sind, and American types flourish in the Punjab and the United Provinces.

Jute is the fibre obtained from a tropical plant which

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grows to a height of between eight and fourteen feet. The eastern part of the Ganges plain, notably Eastern Bengal, produces over 90 per cent. of the world's jute. The jute plant needs plenty of heat and moisture. The seeds are sown in March or April, and the floods caused by the summer rains make it grow rapidly, so that it can be cut in August or September. Jute has long been used

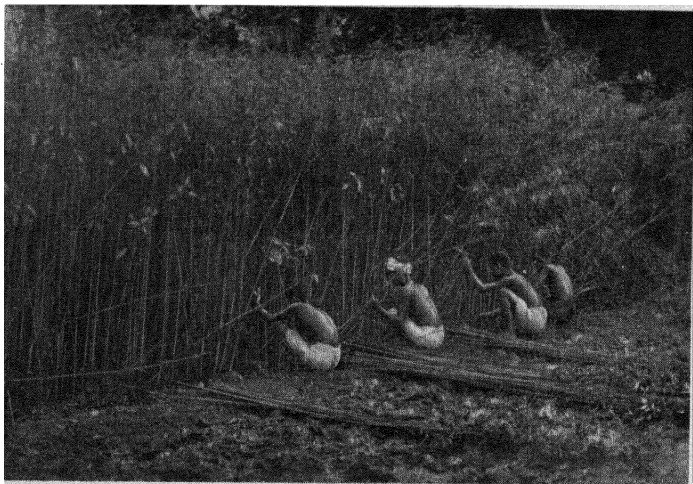


FIG. 40. CUTTING JUTE IN BENGAL

Sometimes the workers have to paddle in thick mud in order to cut the jute.

By courtesy of the High Commissioner for India

in India for making coarse cloth, but its great importance in modern times is for making the millions of sacks and covers used for grain, coffee, sugar, cotton, wool, etc. About half the Indian crop is manufactured near Calcutta, the rest being exported, chiefly to Great Britain, where Dundee is the leading manufacturing town, to the United States, and to continental Europe. Jute is also employed, sometimes mixed with other yarns, for making carpets, curtains, and other fabrics.

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Indigo, a blue dye obtained from a shrub, has for centuries been important in India. The chief indigo areas of India are in Bengal, Bihar, the United Provinces, Madras, and the Punjab. Aniline dyes, first extracted from coal-tar by German dye-works towards the end of last century, have almost killed the export trade of indigo from India, although there was considerable expansion during the Great War.

Oil-seeds are of great importance in Indian commerce. Cotton-seed oil is a food in the cotton areas, and cotton-seed is exported. The oil is used as a substitute for olive-oil and for making lard substitutes, soap, and candles. The waste oilcake is a valuable cattle food. Flax is grown in the moderately wet parts of India for its linseed, which is exported to Britain for the production of linseed-oil, used in paints, varnishes, and linoleums. Rape-seed (the seed of certain cabbage-plants) provides colza-oil, used as a lubricant and important as a lamp-oil before the modern use of paraffin. Sesamum (or sesame) is the seed of a plant grown in the drier regions, its oil being used in India in cooking and lighting and for anointing the body. Sesamum is exported to supply oil for soap and margarine. Ground-nuts, which grow on the roots of a low plant, are very important on dry, sandy soils. Large quantities are exported to Britain and France, the oil being used as a substitute for olive-oil and for making soap and margarine. Castor-oil, pressed from the seeds of a small tropical tree, forms the well-known purgative medicine, but is of much greater importance for lubricating aircraft and automobile engines, and is also used in soap-making. Coconut-palms are important along the sandy coasts. The outer husk furnishes coir, the strong fibre used for ropes, mats, and brushes; the dried kernels form copra, which is crushed for coconut-oil, used by the natives in cooking and for anointing their bodies or hair. The waste pulp is a cattle food. Exported copra is used in the manufacture of margarine, soap, and candles.

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Tea is a hardy shrub, able to endure severe frost, but it grows best in a very warm region with frequent rains and on deep, fertile soils. As its roots are damaged by excessive water tea must be grown on well-drained land. It is thus an important crop on the hill-slopes of Assam, on the Himalayan slopes, and on the Nilgiri Hills. The tea-bushes are pruned, and the new leaves are picked when they reach the required size. The picking is done mainly by the cheap labour of women and children, about once every ten days. The leaves are first withered in the sun, then rolled by machinery, partially fermented, dried once more, and finally sorted into different grades of tea. Half the tea entering world markets is from Assam alone.

Tobacco is extensively grown in India, especially in Bombay, Madras, and the Punjab. The total production is exceeded only by that of the United States, but the great bulk is smoked in India itself, the quality being inferior and export trade small.

Other crops of some importance are coffee, grown in Southern India, but greatly declined in importance, owing to the ravages of plant disease in the past; rubber, grown on plantations in Southern India; and cinchona-trees, the bark of which is the source of quinine, on plantations in Sikkim and Southern India.

Opium, the hardened juice of a cultivated species of poppy, has long been important in India. The seed-vessel of the poppy is scratched, the juice slowly exudes, hardens, and is then picked off. Opium is the source of morphia and other valuable drugs, but unfortunately the taking of opium became a curse in China, to which India, the chief source of supply, sent large quantities. Thanks to international agreement, however, the opium traffic is disappearing. India has agreed to reduce her production and limit her exports to the medical needs of her customers, and since 1917 opium export to China is prohibited. India deserves great credit for her action, as she formerly derived about £10,000,000 a year from

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the opium trade.¹ Nearly all the opium cultivation of India is now restricted to the area round Benares and Patna.

ANIMALS

In animal wealth India is one of the leading countries of the world. The following table is based on recent estimates: ²

ANIMALS	INDIA	UNITED STATES	ARGENTINA	AUSTRALIA
Cattle . .	152,868,000	67,352,000	32,212,000	12,260,000
Sheep . . .	25,295,000	51,374,000	44,413,000	110,619,000
Horses . .	1,683,000	11,942,000	9,858,000	1,776,000

India has also about 35,750,000 goats, 1,370,000 donkeys, and 520,000 camels.

Of the cattle over 120,000,000 are the large white humped oxen, and the remainder are the stronger, but slower, water-buffaloes. Cattle in India play the part of the farm-horse in England: every peasant-farmer has a pair of oxen or buffaloes to drag his primitive plough and his clumsy two-wheeled cart. Milk is quite an unimportant side-line, and as the Hindus will not—on religious grounds—eat meat a great source of food-supply is not utilized to any extent. There are abundant tanning materials in India, but as the making of leather is regarded as a degrading industry immense quantities of raw hides are exported to Britain, continental Europe, and the United States.

Sheep are found mainly on the drier pastures of the Southern Dekkan and the Punjab, but their wool and mutton are alike of poor quality. Goats, which seem to thrive on the poorest pastures, are more numerous than

¹ The export value of opium in 1933-34 was £544,800.

² The numbers of animals given here include those of Burma, for which separate statistics are not yet available.

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sheep. Both sheep- and goat-skins are largely exported. Horses are not important in India, although they are used as draught animals in the north. Donkeys, mules, and camels are found almost entirely in the dry regions of the Indus basin and Baluchistan, and elephants are

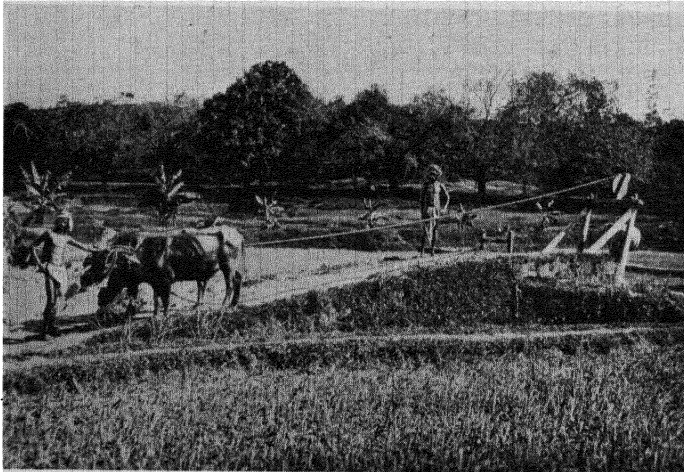


FIG. 41. BUFFALO MHOTE AT MANGALORE, ON THE WEST COAST OF MADRAS

An example of one of the simpler methods of irrigation: a large earthenware pot is hauled up by means of a rope running over a large pulley-wheel.

By courtesy of the High Commissioner for India

pecially trained for hauling and stacking timber in forest regions.

IRRIGATION

A large part of India has a scanty rainfall, and a still greater expanse is liable to have a deficiency. Irrigation is therefore of paramount importance over the greater part of the country if disastrous famines are to be avoided. Wells and small reservoirs have been made in many parts of India since very early times, but irrigation-works on a

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large scale are a feature of modern days, when the British have been able to supply the necessary organization, capital, and engineering skill. Over one-fifth of all the land under crops is irrigated, this being more than ten

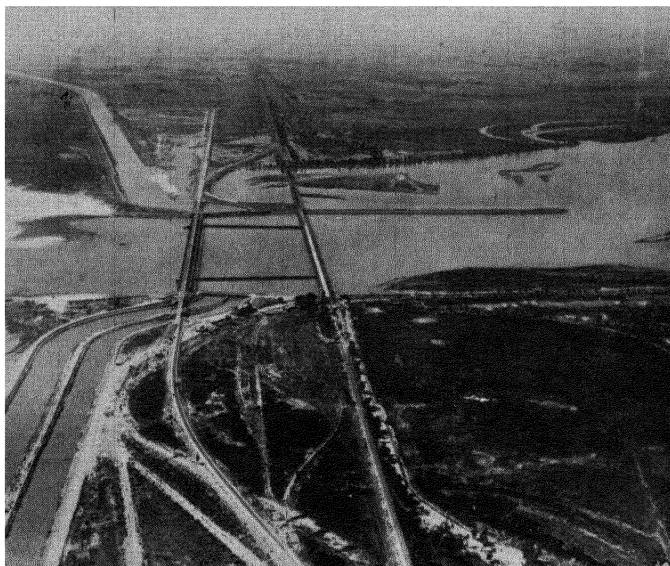


FIG. 42. FEROZEPORE IRRIGATION-WORKS ON THE SUTLEJ, IN THE PUNJAB

The Sutlej has been dammed at this point, and irrigation canals draw off the water to both banks of the river. This is typical of many Government irrigation schemes.

By courtesy of the High Commissioner for India

times the irrigated area of Egypt. Of the irrigated land over one-half is dependent upon canals, nearly one-quarter upon wells, and nearly one-eighth upon 'tanks'—the name given to the reservoirs held up by mud walls built across the valleys of small streams. Inundation canals—that is, canals filled when the river floods in the rainy season—were formerly of great value, especially in

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Sind, but they are being replaced by perennial canals which furnish a water-supply throughout the year. Indeed, the great majority of the irrigation canals are now of the perennial type, constructed by the British Government, principally in the Punjab, the United Provinces, Sind, and Madras. Tank irrigation is of most importance in the eastern—that is, the drier—half of the Dekkan. The tanks vary in size from a few acres to as much as ten square miles. They are of great value, but in a year of deficient rainfall they may not be filled, and in any case they dry up in the hot-weather season. Wells have been sunk to reach underground water, especially in the northern plains, and primitive methods of raising water, by hand or with the aid of animals, are still widely practised.

MINERALS

Minerals are not relatively important in India. The most important mineral is coal, which employs the great majority of miners and accounts for over one-fourth of the annual value of all minerals. The annual production of about 20,000,000 tons is roughly one-tenth that of Great Britain, and is mainly derived from the coalfields lying west of Calcutta, in Bengal and Bihar and Orissa.

The annual output of manganese ore from the ancient rocks of the Dekkan, above all in the Central Provinces, is exceeded only by that of Russia.¹ The ore is exported, mainly for the manufacture of manganese steel, over half the quantity going to Britain. Other minerals of note are salt, produced by the evaporation of sea-water at Aden and on the coasts of Madras and Bombay Provinces and from mines in the Salt Range of the Punjab, and mica, an important product of Madras and Bihar and Orissa.

Iron ore is widely distributed in India, much of it of excellent quality, although practically the whole of the

¹ See p. 105.

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present output is mined in Bihar and Orissa. Production is steadily increasing, and it is likely that India will develop important iron and steel industries.

COMMUNICATIONS

Slow-moving bullock-carts are commonly used by the Indians themselves, but the relative absence of good roads over the greater part of the country renders motor transport of little importance. Rivers and canals are of such great importance for irrigation that they are not used to any great extent for navigation, which would, indeed, be impossible in the dry season on most rivers. The lower Ganges is the most important navigable waterway. In Eastern Bengal and the lowlands of Assam the summer floods are so extensive that it is not uncommon to see boats sailing across fields of rice and jute from the 'island' villages built on mounds (usually artificial) above the normal flood-level.

The slowness, difficulty, and costliness of travel in India help to explain the lack of unity in such a vast country, but British control has brought railways, which are now easily the most important factor in Indian communications and commerce, and a very potent means of bringing the various sections of the country into closer contact. Nearly 43,000 miles of railway,¹ nearly all State-owned, have been constructed in India. More than half the total, including most of the main lines, are of broad gauge (5 feet 6 inches), while most of the remainder, including nearly all those north of the Ganges, are of metre gauge. The railways provide direct employment for over 700,000 workers, of whom less than 4000 are Europeans.

The British came to India as traders: they therefore developed great ports and constructed the principal railways as links between those ports (Calcutta, Bombay,

¹ Canada has 56,000 miles, Australia 27,000, the United States 260,000, and Great Britain 20,000.

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■rachi, Madras) and their hinterlands. The railway map (Fig. 44) clearly shows this, and also reveals the way in which physical geography has influenced the actual routes taken by the lines. Further references will be made to the more important railways in the next chapter.

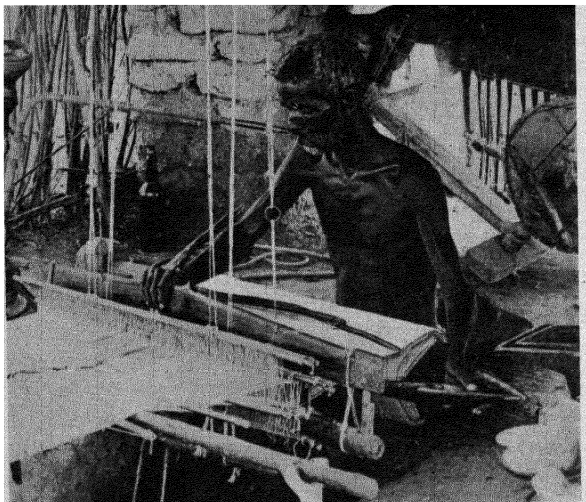


FIG. 43. VILLAGE HAND-LOOM WEAVER

This is a striking contrast with the modern machinery of the great cotton-mills in Bombay, Madura, etc. Mr Gandhi deeply regrets the decline in village handicrafts, and has sought to encourage their revival.

By courtesy of the High Commissioner for India

MANUFACTURING INDUSTRIES

Certain handicrafts are very widespread in India, the most important being the weaving of cotton cloth. Most large villages have a hand-loom weaver (usually a man), but the finer fabrics are made in large towns, such as Dacca and Benares, or special localities. In Assam weaving is a domestic industry of the women. Nearly all the

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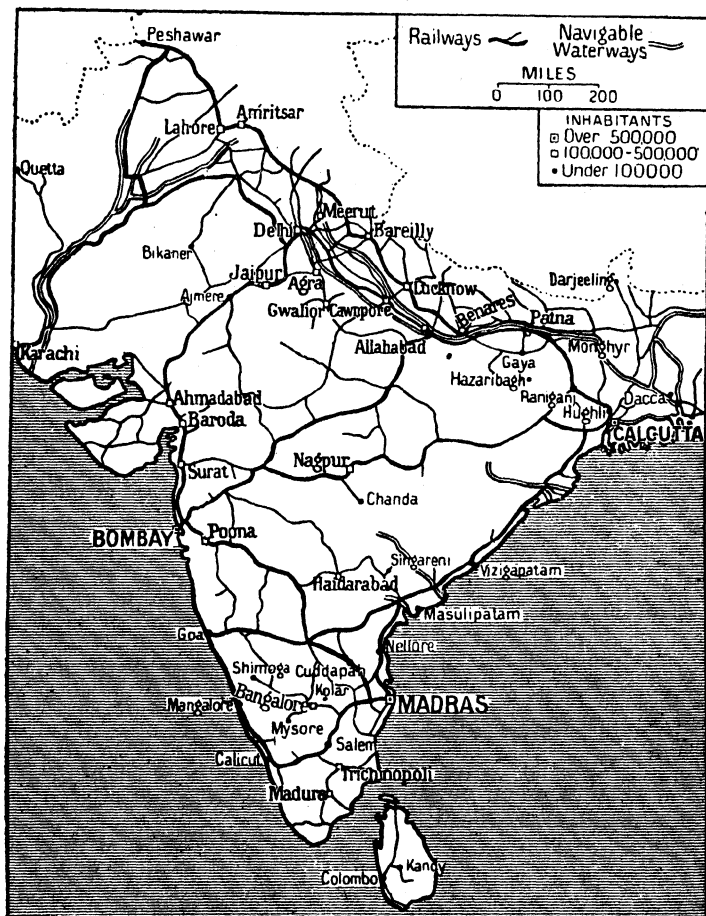


FIG. 44. CHIEF RAILWAYS AND NAVIGABLE WATERWAYS OF INDIA

yarn used by these hand-loom weavers is machine-spun. The weaving of silk into fine cloths is important in Benares and Amritsar, the raw silk coming mainly from

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China. Coarse blankets spun and woven by hand from the wool of local sheep are a widespread production. Woollen shawls and carpets are made in the Punjab, largely of wool imported from Tibet, the Himalayan foothills, Afghanistan, and Iran. Embroidery or needlework in silk, cotton, and wool is a handicraft of minor importance.



FIG. 45. HINDU WOMEN MAKING SUN-DRIED MUD BRICKS AT DEOLALI, UPPER GODAVARI VALLEY

By courtesy of C. D. Draycott, Esq.

The skinning of animals and tanning of leather are regarded as degrading occupations, and as such are practised by the lowest class of Hindus. Nearly every village has its own tanner, and perhaps a shoemaker. The important wholesale trade in hides is conducted by Mohammedans. The factory production of leather and leather goods (mainly footwear) is carried on in a few places, notably Cawnpore and Madras, but there is room for enormous expansion in these industries in view of the great wealth of hides and tanning materials in India.

INDIA: GENERAL ACCOUNT

Pottery is made in every village, important items being storage-jars, pots for water-wheels, and tiles. The village blacksmith adopts crude but effective methods in making and repairing the simple tools and implements of the cultivators. The making of copper and brass vessels and ornamental work in the same metals are carried on in all parts of India by skilled artisans. There are also numerous workers in gold and silver.

The chief manufacturing establishments in British India, with the number of workers employed (in 1932¹), are shown in the following table:

MANUFACTURING ESTABLISHMENTS	NO. OF ESTABLISHMENTS	NO. OF WORKERS
Cotton-spinning and cotton-weaving mills . . .	307	395,807
Cotton-ginning and pressing factories . . .	2,049	120,633
Jute-mills . . .	100	263,442
Jute-presses . . .	97	29,210
Railway and tramway work-shops . . .	90	52,322
Rice-mills . . .	1,498	74,384
Tea factories . . .	978	58,452
General engineering works .	262	26,105

It cannot be emphasized too often that the Indian people are predominantly farmers. In general they do not take kindly to modern manufacturing industries, and on the whole are not very efficient workers in factories or mines.

The organization of industries on the lines evolved by Western nations . . . is something which is altogether alien to the genius of the Indian people. . . . The worker in the factory and the mill is still a villager at heart. . . . He stays and works as long as necessity compels him, and then he departs—back to his village.²

¹ The numbers, therefore, include the manufacturing establishments and workers of Burma.

² Lord Ronaldshay, *India: a Bird's-eye View* (Constable).

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Industrial progress in India is in the main due to foreign rather than Indian enterprise. The jute-mills of the Calcutta district, for example, employing nearly 300,000 workers, are almost all in European hands. There are, however, a few notable examples of manufacturing industries under direct Indian control. Cotton-

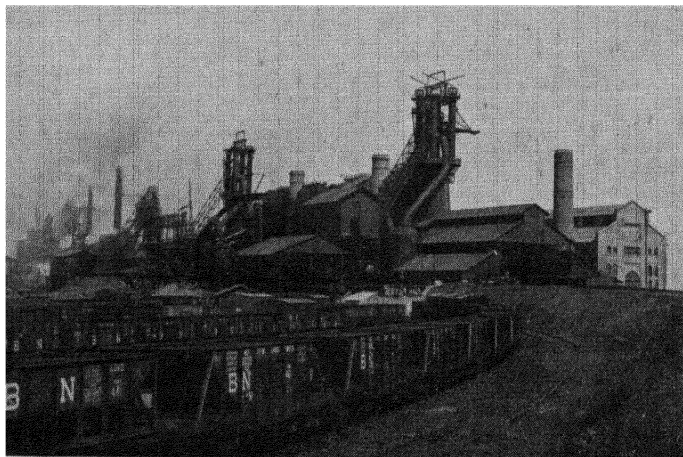


FIG. 46. THE FIVE BLAST-FURNACES OF THE TATA IRON AND STEEL COMPANY AT JAMSHEDPUR

A good example of modern industrial development in India.

By courtesy of the High Commissioner for India

spinning and -weaving employ nearly 400,000 workers, mostly under Indian mill-owners, two-thirds of the mills being in Bombay Presidency, where the captains of industry are chiefly Parsis. The great Tata Iron and Steel Company, with works at Jamshedpur, on the borders of Bengal and Orissa, was founded by a Parsi firm from Bombay in 1907. The same Tata Company has also been responsible for great hydro-electric power developments along the Western Ghats, and recently it founded an air

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company to undertake the internal air communications of India. It is clear, nevertheless, that modern manufacturing industries are not favoured by the majority of Indians, and that developments for some time, at any rate, will depend upon European and Parsi enterprise.

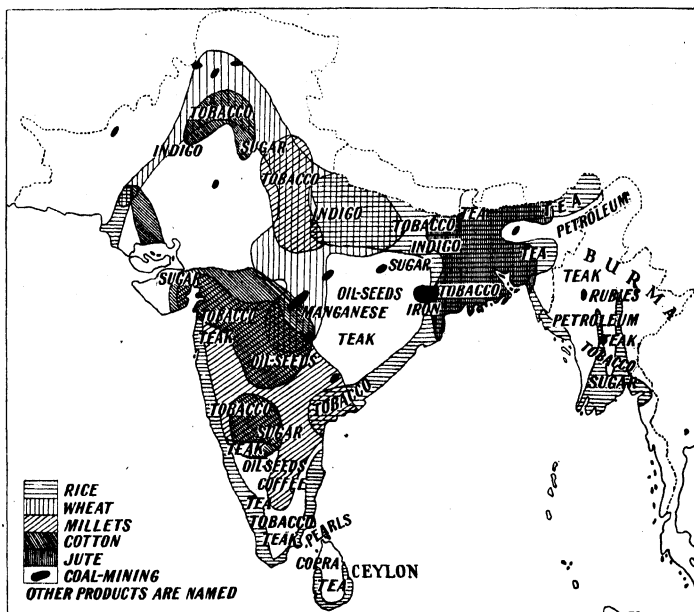


FIG. 47. IMPORTANT PRODUCTS OF INDIA, BURMA, AND CEYLON

TRADE

The degree to which India is shut off from the rest of Asia is apparent from the fact that nearly 95 per cent. of all her foreign trade is carried on by sea, and almost entirely through four great ports—Bombay, Calcutta, Karachi, and Madras.

About three-quarters of India's total exports are raw

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materials and foodstuffs, the chief items being cotton, jute, oil-seeds, tea, and hides and skins. Other exports of this class worthy of note are metal ores (especially manganese), lac, wool, and oilcake.

The other great class of exports is manufactured goods, mainly manufactures of jute, cotton, and leather.

About 60 per cent. of the import trade is manufactured goods, notably cotton cloth and yarn and metals and metal goods (textile and other machinery, motor-cars, railway stock, hardware). Over 10 per cent. of imports is foodstuffs, sugar being of outstanding importance, the rest being grain, provisions, liquors, fruits, and vegetables. The remainder of the imports are principally raw materials, such as oils, raw silk, and timber.

It is important to note that the total value of imports is far below that of exports, in recent years by nearly 20 per cent. The difference is accounted for by the

PERCENTAGE OF TOTAL INDIAN TRADE¹

	IMPORTS INTO INDIA		EXPORTS FROM INDIA	
	Pre-War ²	Recent Year ³	Pre-War ²	Recent Year ³
United Kingdom . . .	63·2	38·9	26·3	29·5
Total British Empire . . .	73·8	48·1	43·6	39·8
Germany	4·5	7·8	9·7	6·5
Java	4·4	3·1	—	0·7
Egypt	2·9	0·7	—	0·8
United States	2·3	4·6	7·1	8·4
Austria and Hungary . . .	1·7	0·5	3·2	0·0
Japan	1·6	15·3	5·9	9·3
France	1·5	1·4	6·1	5·4
China	1·4	2·5	4·9	3·7
Belgium	1·3	2·5	5·0	3·0
Italy	1·0	2·8	3·1	3·6
Total foreign countries . .	26·2	51·9	56·4	60·2

¹ The figures include the trade of Burma.

² Average from 1907 to 1911.

³ Average from 1932 to 34.

INDIA: GENERAL ACCOUNT

necessity of exporting a surplus of goods to pay for the home charges of the Indian Government, pensions, and the cost of transporting the export trade (charges for shipping, insurance, banking, etc.).

The bulk of Indian trade is carried in British ships, and Britain holds the first place in both import and export trades of India. As compared with pre-War years, however, important changes are taking place, the most noteworthy being the relative decline in British trade and the rise of Japanese and United States trade with India.

In pre-War years about 80 per cent. of all shipping entering Indian ports was British; in recent years the percentage is only a little more than 70.

The value of Indian trade proceeding overland is extremely small, and is naturally concerned with neighbouring States, such as Iran, Afghanistan, and Tibet.

INFLUENCE OF DISEASES

An account of India would be incomplete without reference to the serious effects of certain diseases. Malarial fever is very widespread in India, causing millions of deaths every year, and gravely reducing the vitality of many millions more. Malarial germs are conveyed by the bite of female mosquitoes, but it is not possible in very wet areas, such as Bengal, to drain the swamps where they lay their eggs. Experience has shown, however, that extensive flooding tends to kill the larvæ, provided that the water is very warm. It is possible, therefore, by means of regulated floods during the summer, to destroy the larvæ, and by the same operation to increase the production of rice and jute. Bengal has already made a start in such flooding schemes.

Near Darjeeling and in Madras Province and Ceylon there are large Government plantations of cinchona-trees, to furnish adequate supplies of quinine—perhaps the best medicine for combating malaria.

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Bubonic plague, which first appeared in Bombay in 1896, was responsible for over 10,500,000 deaths within twenty-five years. Another disease that is widely prevalent in India is due to the hook-worm, a tiny half-inch parasite that lives in the human intestines, thereby upsetting the digestive system and causing acute discomfort and depression. In certain areas more than 80 per cent. of the population are victims of hook-worm. Cholera and dysentery account for about 500,000 deaths each year.

Malaria, hook-worm, and other diseases have such a devitalizing effect that epidemics usually result in appalling death-rates, as, for example, during the influenza scourge of 1918. Unfortunately the fight against disease in India is seriously handicapped by the low standard of living of the Indian peasants, many of whom are constantly undernourished. The death-rate in India is more than double that of England and Wales.

EXERCISES

1. Show the following rainfall figures in graphical form, and point out how they illustrate the principal features of the climate of India.

MEAN MONTHLY RAINFALL (IN INCHES)

PLACE	ALT IN FEET	J	F.	M	A	My	Jn	Jy	Aug	S.	O	N	D	ANNUAL TOTAL
Bombay	37	0.1	0	0.1	0	0.7	20.6	27.3	16.0	11.8	2.4	0.4	0	79.4
Poona	1,846	0.1	0.1	0.1	0.6	1.4	5.4	7.2	3.7	5.1	4.0	1.1	0.2	28.9
Madras	22	1.1	0.3	0.3	0.6	1.8	2.0	3.8	4.5	4.9	11.2	13.6	5.4	49.6
Calcutta	21	0.4	1.1	1.4	2.0	5.0	11.2	12.1	11.5	9.0	4.3	0.5	0.2	58.8
Benares	267	0.7	0.6	0.4	0.2	0.6	4.8	12.1	11.6	7.1	2.1	0.2	0.2	40.6
Delhi	718	1.0	0.6	0.5	0.4	0.7	2.9	7.6	7.0	4.7	0.5	0.1	0.4	26.2
Peshawar	1,113	1.5	1.2	2.0	1.7	0.7	0.3	1.2	2.1	0.8	0.2	0.4	0.6	12.8
Cherrapunji	4,309	0.7	2.1	11.7	30.8	46.2	96.8	98.2	76.5	46.1	16.7	1.9	0.2	427.8
Multan	420	0.4	0.3	0.4	0.3	0.3	0.5	1.9	1.7	0.6	0.1	0.1	0.2	6.8

2. Why is irrigation more important in certain parts of India than in others? Give an account of the chief methods of irrigation.
3. Estimate the difficulties in the way of establishing a system of self-government in India.
4. Draw a map to show the chief communications of India by land, sea, and air.

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5. Give an account of the distribution and importance of manufacturing industries in India, and point out the probable lines of future development.

6. Show in diagrammatic form the tables of statistics given in this chapter (religions, animals, manufacturing industries, trade). Add brief explanatory notes.

CHAPTER VIII

THE REGIONAL GEOGRAPHY OF INDIA

INDIA is so vast that it is possible to subdivide it into many natural regions. For the present purpose it will be sufficient to adopt the divisions shown on the map (Fig. 48), and the varying conditions within these extensive regions

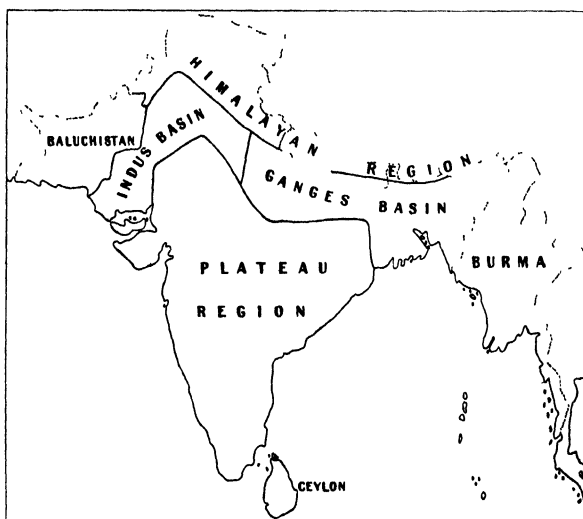


FIG. 48. MAJOR NATURAL REGIONS OF INDIA

will be noted. Political boundaries have been taken into account in the succeeding regional accounts.

BALUCHISTAN

The mountain- and plateau-lands bordering India on the north are in general incapable of supporting dense

REGIONAL GEOGRAPHY OF INDIA

populations. There is thus a temptation for the pastoral tribesmen to supplement their means of livelihood by attacks on trading caravans using the mountain-passes or by invasions of the Indian lowlands. Britain has frequently found it necessary to take action against the



FIG. 49. THE MAKRAN COAST OF BALUCHISTAN

The Imperial Airways route to Karachi and Singapore follows the Makran Coast. This infra-red photograph shows the weird shapes resulting from the action of wind-blown sand and the occasional torrential rains in a land of jointed, stratified rocks that is normally arid.

"The Times" copyright

unruly peoples of the mountain belt and to push outward the bounds of British control. After the Afghan War of 1878-81 the northern districts of Baluchistan (over 9000 square miles) came under British rule, and later other districts, with a total area of over 45,000 square miles, were placed under British officers, while the rest of the

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country (over 80,000 square miles) to the south consists of two native states.

Baluchistan is larger than the British Isles; its population is under one million and predominantly of the Moslem faith. The country is an arid plateau, 1000 to 3000 feet in height, surrounded by barren mountains rising to over 6000 feet, thus forming a basin of inland drainage, with the dreary Makran coastal belt on the south. The uplands are bitterly cold in winter; the lowlands are intensely hot in summer; and everywhere the rainfall is scanty and uncertain. There are extensive areas of fertile soils, but the absence of permanent rivers makes agriculture difficult. Rivers exist only for brief periods, and the lakes are generally gloomy swamps, which sometimes dry up completely. Nomadic tribes dependent on sheep, goats, horses, cattle, and camels wander in search of pasture, forsaking the torrid plains in summer for the cooler uplands. The animals supply all the needs of these primitive people, who live in tents in summer and huts of mud and straw in winter.

In the restricted areas where water is available for irrigation a great variety of crops is grown. Millet is the chief crop; others are wheat, barley, rice, maize, potatoes, and fruits (grapes, apricots, peaches, apples, and melons). Dates are important along the Makran Coast, where a little fishing is carried on.

Ancient camel-caravan routes cross Baluchistan, and in the north one of the most important is followed by a broad-gauge railway from Sind, linking Quetta and other centres and penetrating fifty miles into Iran. A branch runs to Chaman, an important British fortress on the Afghan frontier. Quetta (60,000),¹ the only large town, is the chief military and administrative centre of British Baluchistan, commanding the Bolan Pass, the easiest route from India, used by camel caravans trading between India and Baluchistan, Afghanistan, and Iran.

¹ Quetta was destroyed by earthquake in 1935, but is being rebuilt.

REGIONAL GEOGRAPHY OF INDIA

THE HIMALAYAN REGION

A general description of the Himalayan region has already been given. It now remains to examine in greater detail the various sections of the mountain belt.

The North-west Frontier Province. Before 1901 the Punjab Province was responsible for the defence of the

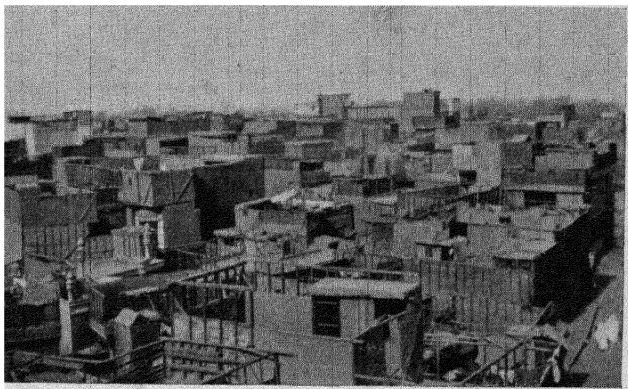


FIG. 50. SECTION OF PESHAWAR CITY

The city contains only three or four wide streets, and the flat-roofed houses are densely crowded. On the roofs the inhabitants may take a bath, enjoy a nap, or hang out the washing.

By courtesy of C. D. Draycott, Esq.

north-west frontier, but in that year it was decided to form a separate frontier province, directly controlled by the Central Government of India. The North-west Frontier Province¹ occupies the most important position in the land defences of India, for to the west lies Afghanistan, approached by passes used by traders and, in the past, by invaders, communicating beyond with the plains of Turkestan. The province consists of several lowlands separated by bare, inhospitable mountains inhabited by

¹ Constituted a Governor's province in 1932.

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hardy tribesmen who are in great measure subject to British control. The climate is one of extremes in temperature, with scanty rainfall. On the lowlands, particularly in the Indus valley and round Peshawar and Bannu, where irrigation is possible, dense populations are supported by agriculture, the chief crops being wheat (over 40 per cent. of the acreage under cultivation), barley, and maize; millet is grown in areas with sufficient rainfall. The area of the province is 13,500 square miles, and 91 per cent. of the population of 2,425,000 are Moslems. Peshawar (122,000), the chief town and the centre of government, commands the Khyber Pass, and thus controls the trade with Afghanistan and the countries beyond. Peshawar is the great frontier fortress guarding the Punjab from invasions and tribal raids. An important railway, crossing the Indus near Attock, links Peshawar with Delhi and Calcutta, and another line connects it with Karachi. The British have made a metalled road, suited to motor traffic, from Peshawar through the twenty-mile-long narrow gorge of the Khyber Pass, the road ending abruptly at the frontier of Afghanistan. On Tuesdays and Fridays British patrols of military police mount guard along the heights overlooking the road, and Khassadars form escorts for the caravans of laden camels that pass through only on these two days. The Khassadars are tribesmen from the hills who receive a distinctive headdress and a monthly wage from the Government of India, and provide themselves with rifle and ammunition. The formation of these frontier forces has done much to reduce the turbulent spirit of tribes whose favourite occupation is fighting. Following the brief third Afghan War of 1919, it was decided to make a railway, twenty-seven miles long, from Jamrud, through the pass, to the Afghan frontier. This line, with its thirty-four tunnels, was opened in November 1925, and will help to maintain peace in the frontier region.

To the west and north of the province proper lie the

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tribal areas, forming in all an area twice as great, inhabited by Wazirs, Mahsuds, Afridis, Mohmands, and other Pathan tribes. The total population is about 3,000,000, and is predominantly Mohammedan. These tribal areas



FIG. 51. THE NORTH-WEST FRONTIER, NEAR THE KOHAT PASS

A vivid picture of the hills of the north-west frontier, taken by a Royal Air Force machine from a height of nearly 6000 feet. Note the contrast between the wild hill-country and the cultivated lands in the left foreground.

Royal Air Force official photograph. Crown copyright reserved

have been under British influence since 1893, when the present Afghan frontier was agreed upon; and as they are under the control of the Governor of the North-west Frontier Province they may be regarded as part of that province.

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The tribal areas are a region of bare, inhospitable mountains.

It is in their deep and tortuous valleys that are found bodies of hardy and fanatical tribesmen, well armed and fearless, unable to extract more than the barest pittance from the stony ground where they live and quarrel, but



FIG. 52. THE KHYBER PASS

The pass is a narrow defile winding between cliffs of shale and limestone, 600-1000 feet high, stretching beyond to still higher mountains.

Royal Air Force official photograph. Crown copyright reserved

having before their eyes the tempting prospect of booty from the passing caravan or from a raid into the settled districts below them. . . . The tribesman lives inside his fortified farmstead with his womenkind, cultivates by primitive methods a limited strip of ground, maintains a constant state of feud with many of his neighbours, and knows that if he shoots his enemy neither the frontier authorities nor the British courts are likely to interfere.¹

¹ *Report of the Indian Statutory Commission, 1930, vol. i.*

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The tribesmen are now better armed and trained than in the nineteenth century, and their raids inflict heavier losses on the British frontier forces. Hence, perhaps, the desire of the British Government to continue the use of aircraft for punitive bombing-raids on the north-west frontier. By common consent the British military roads—for example, that through the Khyber Pass—are inviolate, and no tribesman would dream of attacking anyone travelling along these roads.

Kashmir. The Indian state of Kashmir is almost as large as Great Britain. The bulk of the population of 3,646,000 is Mohammedan, but the ruling family is Hindu. The present ruler has been responsible for rapid progress in education and industry, one of the chief objects being to develop the great mineral wealth and other natural resources of the country. Kashmir is an extremely mountainous state, for the most part bleak, bare, and unproductive. In the extreme north the boundary includes part of the Tibetan plateau, shut off by the mighty Karakoram Range, which overlooks on the south the narrow upper valley of the Indus. South of the Indus valley and parallel with it are the Inner and Middle Himalayan Ranges, then the broad upper valley of the Jhelum, and, finally, the Outer Himalayan Range and its foothills. The various mountain-ranges increase in height as one passes northward. The Himalayas shut out the monsoon rains, and the upper Indus valley is very dry. The chief town on the upper Indus is Leh, a great caravan centre for the trade—only possible in summer—in rice and sugar from India, wool from Tibet, and carpets, silk, tea, and fruits from Turkestan. The long lines of laden animals cross the Karakoram Range by the Karakoram Pass, the chief of a number of difficult passes.

Flowing north-westward, the Indus passes through a tremendous gorge, then turns abruptly, receives the Gilgit tributary, and makes its way through forested gorges in a general south-west direction to the plains.

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The mountain pastures of Kashmir are used as summer grazing for goats and sheep, which supply the raw materials for the famous Kashmir shawls and rugs. The extreme south of the country, including the upper Chenab valley, is fertile and well-peopled, and here lies Jammu, the winter capital of Kashmir, connected by railway (the only one in the state) with the Punjab. But the most famous part of the country is the Vale of Kashmir—the upper Jhelum valley—celebrated for its fertility and marvellous beauty. The Jhelum slowly winds through a broad, level plain, including in its course Lake Wular. The lower slopes of the valley-sides are terraced with orchards of apples, pears, and oranges, while grain crops are important on the alluvial flats near the river. Agriculture is thus the chief industry, the rearing of silkworms ranking next. Srinagar (150,000), the beautiful rose-bowered capital of Kashmir, is the agricultural centre of the Vale and the headquarters of the famous handicrafts of the country—the weaving of shawls, wood-carving, metal-work in silver and copper, and lacquer-work.

Nepal, an independent kingdom in friendly relationship with India, is a little smaller than England and Wales, and includes a belt of the Himalayas some five hundred miles long, with the rank jungle of the Terai on the south. The primitive people are mainly of Tartar origin, but the ruling race is the Gurkhas, who originally came from Udaipur, in Southern Rajputana, and conquered Nepal in the latter half of the eighteenth century. The Gurkhas are a famous military race, and conduct the affairs of the country on military lines. Many Gurkhas serve in the Indian Army. Their early type of Hinduism is steadily changing the Buddhism of the primitive inhabitants. The total population of Nepal is about 5,600,000. Europeans are excluded from Nepal, which until recent years was one of the least-known parts of Asia. Signs of modern progress may be seen in the abolition of slavery in 1924-26, the opening in 1927 of a short metre-gaug

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railway and a ropeway, which in combination give access to the Katmandu valley, and the completion in 1927 of a topographical survey of the country by the Survey of India. The most densely peopled and productive part of Nepal is the Katmandu valley, fifteen miles long and seven miles wide, in which stands the capital, Katmandu (80,000). Nepal produces cereals, timber, and cattle, and carries on trade with India and Tibet.

Sikkim is a small country, a little larger than the West Riding of Yorkshire, and lies immediately east of Nepal, which it resembles in relief and products. Buddhism is the official State religion, but the majority of the population of 110,000 are Hindus in religion and Mongolian in race. The heavy summer monsoon rainfall is reflected in the extensive forests of the valleys and lower mountain-slopes, where the scattered population live in tiny villages in the midst of clearings. The chief trade route from Bengal to Lhasa and other Tibetan towns passes through Sikkim, which has been under British protection since 1890. The capital is Gangtok.

Bhutan. East of Sikkim lies the equally mountainous and forested but much larger state of Bhutan, nearly one-third the size of England and Wales, but with a population of little more than 300,000. Bhutan is an independent state, guided by British advice in external affairs. As in Tibet, the people are Buddhists, and there are several monasteries and fortress dwellings.

The remaining sections of the Himalayan region are included in the Punjab, the United Provinces, Bengal, and Assam, and will be dealt with in the accounts of those provinces.

THE INDUS BASIN

The upper course of the Indus has already been described. Politically the area now under consideration is the Punjab and Sind, which consist for the most part of the plains drained by the Indus and its tributaries.

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Sind is politically part of the Bombay Presidency, but is separated from the rest of the province by certain native Indian states. There is no direct railway connexion between the two parts of the Presidency, and communication between Bombay and Karachi is normally by sea. Sind, with an area of 46,378 square miles and a population of 3,279,000, is the broad alluvial plain of the lower Indus, lying between the plateau of Baluchistan on the west and the Thar Desert on the east. The relatively near approach of the southern end of the Sulaiman Mountains and the Thar Desert serves to separate Sind from the Punjab. Three-quarters of the population of Sind are Moslems—a marked contrast with the Hindu peoples of the rest of Bombay Presidency.¹ Conditions of life are strikingly contrasted too, Bombay Presidency proper being a region of mountains, heavy summer monsoon rains, and forests, while Sind is a lowland desert region of very scanty rainfall, where cultivation depends entirely upon the Indus. Most of the land within reach of the river has long been cultivated by means of inundation canals, which are filled only when the summer floods come down from the rains and melted snows of the Himalayas. These inundation canals are dry during much of the year, and the volume of flood-waters may vary considerably from year to year. The Indus delta is not irrigated, and apart from some good pasture-land is unproductive and uninhabited.

Since the Great War a gigantic effort has been made to bring prosperity and rapid development to Sind by the construction of the Sukkur or Lloyd Barrage, the greatest engineering feat of its kind in the world. Work began in 1923, and the Viceroy of India officially opened the barrage in January 1932. The barrage consists of two bridges, each more than five times the length of London Bridge, built across the rocky gorge of the Indus below

¹ There is a strong Moslem demand that Sind should be completely separated as a political unit from Bombay Presidency.

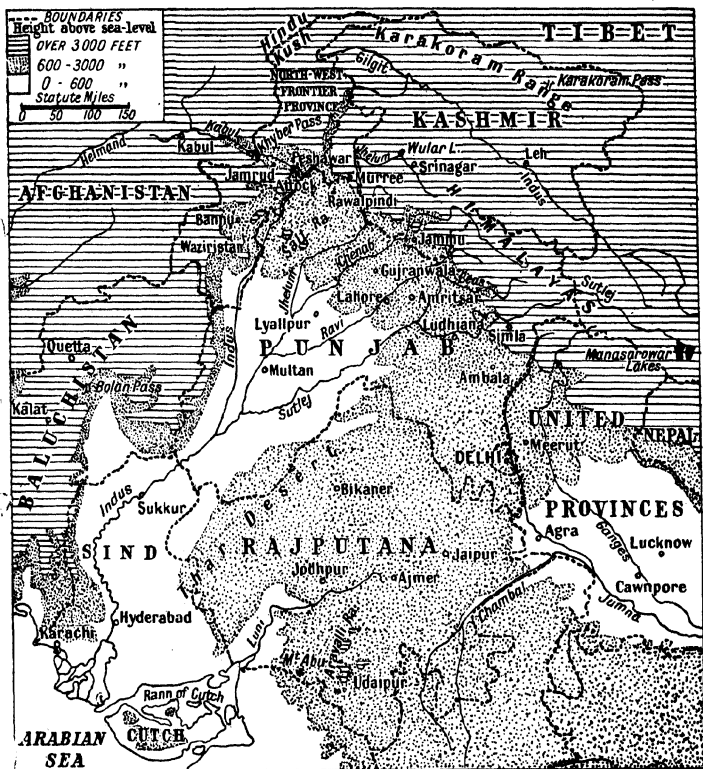


FIG. 53. THE INDUS BASIN, KASHMIR, THE NORTH-WEST FRONTIER, AND RAJPUTANA

For the railways of this region see p. 193.

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the town of Sukkur. Sufficient water is held up by the great dam to furnish supplies throughout the year to an area much greater than the productive land in Egypt, thus increasing the cultivated area of Sind by nearly threefold. There are seven great canals, some of them broader and very much longer than the Suez Canal, besides a network of smaller branches. The increase in



FIG. 54. THE SUKKUR BARRAGE ON THE LOWER INDUS, SIND

Royal Air Force official photograph. Crown copyright reserved

agricultural output will naturally lead to the construction of new railways and roads, and should bring increasing prosperity to the population.

Millet forms about one-third of the total crops of Sind ; rice one-quarter, wheat about one-eighth, while cotton and oil-seeds are the only others of importance.

Hyderabad (85,000) stands north of the apex of the Indus delta, at the lowest bridge-point on the river, where the railway crosses from the left bank to reach Karachi. Karachi (264,000), a great modern port built on a good

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natural harbour just west of the delta, has rapidly grown in importance. As the Indian port nearest to Britain it has become extremely important in connexion with the Suez Canal traffic, and is also the chief Indian airport. The North-western Railway gives direct contact, *via* Hyderabad, with Delhi and the Punjab. Wheat and cotton are the two great exports from the hinterland of Karachi.

The Punjab. *Punjab* is an Iranian word meaning 'five

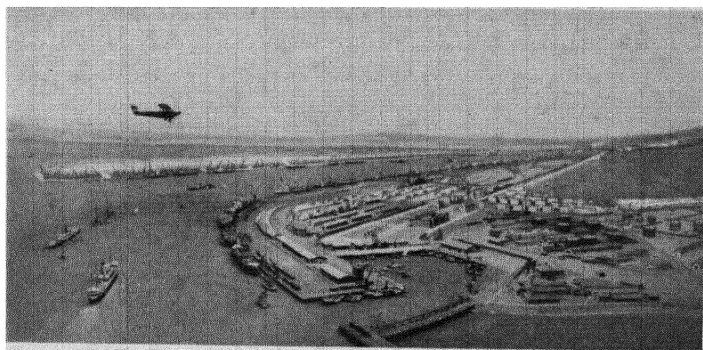


FIG. 55. VIEW OF KARACHI HARBOUR

Note the circular oil-storage tanks on the right. Karachi is developing as an airport.

By courtesy of G. F. Green and the High Commissioner for India

rivers.' The Punjab is the land drained by the Sutlej, Beas, Ravi, Chenab, and Jhelum, which eventually flow into the Indus. The Punjab Province has an area of nearly 100,000 square miles and a population of 23,580,000. The thirty-four small Indian states associated with it have in all an area of 37,000 square miles and a population of 4,910,000. Of the total population 56.5 per cent. are Moslems, chiefly in the west of the province, 26.8 per cent. Hindus, mainly in the east, and 13 per cent. Sikhs, largely in the central area. The Punjabis in general are sturdy and enterprising. Large numbers enter the Indian Army, and in the Great War they formed one-third of the

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total Indian forces. Some are found as soldiers, police, or settlers in many parts of the East.

Throughout the Punjab the range of temperature is great, summer bringing scorching heat and winter being rather cool, with frequent night frosts. The northern section of the Punjab includes the Salt Range and a section of the Himalayas and their foothills, a region subject to destructive earthquakes. This section has a good rainfall from the monsoon in summer and from cyclones in winter, but the southern part of the province, bordering on the Thar Desert, is extremely dry. The most important part of the province is the alluvial Punjab plains, where the roughly parallel rivers have made possible the construction of great irrigation-works. The land between any pair of the rivers is known as a *doab*. During the dry season the rivers are very low, but the melting snows and heavy rains of summer on the mountains convert them into full, rushing torrents, which sometimes break through their banks. The higher parts of the *doabs* in the Northern Punjab have sufficient rainfall to permit the growth of many crops without canal irrigation, although there are numerous wells. The Punjab territory east of the Sutlej includes the low water-divide between the Indus and Ganges river systems. In this region irrigation is necessary for good crops, except in years of rainfall above the average. In the rest of the plains, however, the *doabs* would be arid scrub-lands were it not for the wonderful system of irrigation canals which have brought increased prosperity to the province. Agriculture is the mainstay of 60 per cent. of the people, at least 90 per cent. of whom live in villages of flat-roofed mud-and-wattle huts. The farmers tended to congregate in villages in former days as a protection against attacks by raiders from the hills. More than half the cultivated land of the province depends upon irrigation, chiefly by the great Government-owned permanent irrigation canals, and to a lesser degree by inundation canals, tanks, and

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wells. Nearly one-third of the land under crops is devoted to wheat, which is a winter crop, harvested in February and March. About one-eighth of the cultivated land is sown with millet. This is grown as a summer crop, dependent on the monsoon rains, and often occupies the same ground as wheat. Smaller quantities of barley, maize, and rice are grown. Cereals, especially millet and wheat, form the staple diet of the people, and large quantities of wheat are exported, chiefly to Italy and the other Mediterranean countries, where the hard Indian wheat is valued for making macaroni and vermicelli.

Cotton is a very important summer crop of the irrigated lands. Much of it is American cotton, superior in quality to the native types. There is a large export of raw cotton, in addition to the great quantities used in Indian mills or in the homes of the peasants. Indeed, hand-loom weaving ranks next to agriculture in the number of workers engaged. Fodder crops for the cattle employed in farm-work are important, and oil-seeds are grown for export.

The Punjab has good railway connexion with Karachi, through which the bulk of its trade passes, with the Ganges plains, and with the north-west frontier.

Rawalpindi (119,000) is an important military centre commanding the routes of the north-west frontier and the chief routes into Kashmir, and is thus the centre for trade with Kashmir. Murree is one of a number of hill stations, of which Simla is the most important. During the intense heat of summer the Government of India is established from April to October in Simla, which occupies a most beautiful site at a height of 7100 feet, and lies due north of Delhi, the capital, with which it is connected by railway.

Lahore (430,000), on the left bank of the Ravi, is the capital of the Punjab, conveniently located near the centre of the province. It thus forms the focus of its railways and the headquarters of its manufacturing industries, notably cotton, flour, soap, and leather. There are also important railway workshops.

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Amritsar (265,000), the religious centre and former capital of the Sikhs, has rather an unhealthy site due east of Lahore. It manufactures carpets, silks, and cotton goods. Multan (119,000), a very old market town lying east of the Chenab, stands on the main railway to Karachi, and is the natural centre of the Southern Punjab, with a trade in wheat, cotton, and wool. Its industries include silk- and cotton-weaving, carpets, and pottery.

Other towns of consequence are Lyallpur, a fine modern town important as a wheat-collecting and cotton-manufacturing centre; Ludhiana, another cotton town; Gujranwala, a market town with pottery and other manufactures; Ambala (76,000), an important modern railway junction, a collecting centre for grain and cotton, and a manufacturer of cotton, flour, and carpets.

THE GANGES BASIN

The Ganges basin is the most productive and most densely peopled part of India, supporting a population of over 100,000,000. Politically the region to be described consists of the United Provinces of Agra and Oudh, Bihar (the northern section of the province of Bihar and Orissa), the Presidency of Bengal, and the province of Assam. Physically the region consists mainly of the vast level alluvial plains of the Ganges and its tributaries, one of the most fertile regions in the world, while in Assam the Brahmaputra valley leads into Bengal, and the plains are broken by the Khasi Hills, which project westward from the north and south folded ranges of Eastern Assam. As one passes eastward along the Ganges basin from Delhi to Calcutta there is a gradual change in climatic conditions. The summer temperature decreases, the winter temperature increases, and, most important of all, the rainfall becomes greater. Consequently the water-table—that is, the depth below which the ground is saturated with water—is practically at the surface in the delta region,

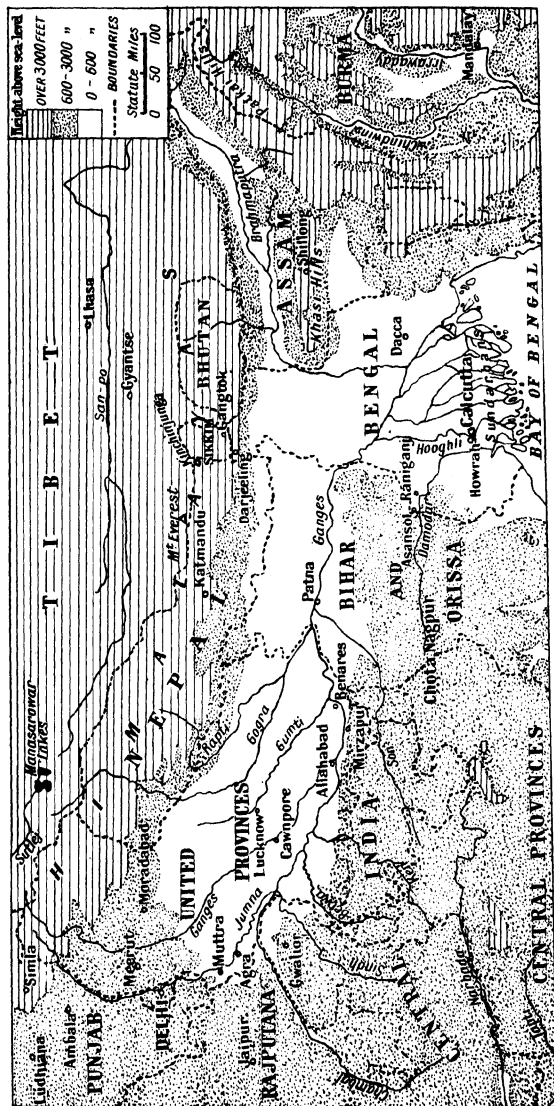


FIG. 56. THE GANGES-BRAHMAPUTRA BASIN
For the railways of this region see p. 193.

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but gets gradually deeper towards the west, necessitating deeper and deeper wells if the underground water is to be reached.

In the upper Ganges basin, comprising the greater part of the United Provinces, irrigation is very important. North of the Ganges the water is obtained chiefly from wells and tanks, although the Government has recently constructed two irrigation canals from the Sarda tributary of the Gogra. The *doab* between the Ganges and Jumna is naturally the best-irrigated area, canals drawing water from both rivers, while the Jumna also supplies canals for the land to the south of that river. In the *doab* half the crops are grown by irrigation. Wheat, grown in winter, is the most important crop, with millet ranking next. Barley, maize, gram (chick-peas) and other pulses, with rice and sugar on the wetter soils, are other crops of value. Cotton is important, and supplies the great mills of Agra and Delhi. The region has relatively more cattle than any other part of India, and dairy produce is noteworthy in some districts. Great quantities of fodder are grown for the cattle.

Delhi (477,000), the capital and seat of government of India since 1912, stands in Delhi Province, a small area of 593 square miles separated from the Punjab and United Provinces. A short distance from the old city stands New Delhi, a splendid modern city worthy of the great Indian peoples. New Delhi was formally opened in 1931, and houses the Central Government of India. In the past Delhi has been the capital of several empires, and the city has frequently been destroyed by invaders. It is obvious, therefore, that the site of Delhi must be of unique importance as a governing centre. The map (Fig. 57) shows that Delhi stands on the Jumna in the middle of the corridor between the Himalayas on the north and the Thar Desert and Aravalli Hills on the south. Delhi thus commands the natural route followed by invaders from the north-west frontier in their efforts to conquer the most

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productive region of India—the Ganges basin. Delhi is an excellent capital, because of its strategic position between the Ganges basin and the Punjab. It stands at the head of navigation of the Jumna, with river navigation to Calcutta. The city has naturally become an important railway centre, in direct communication with all parts of India, and is also an important industrial centre, with

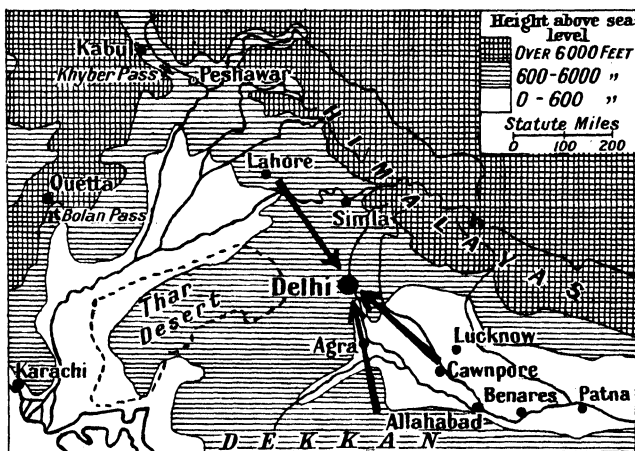


FIG. 57. POSITION OF DELHI

Note the important routes from the north-west frontier, the Punjab, the Ganges basin, and the Dekkan.

manufactures of cotton, sugar, jewellery, brass- and copper-ware, and pottery.

The United Provinces are almost equal to the British Isles in area and population, the density of population in most parts exceeding 500 per square mile. The whole region is most typically Indian, for 90 per cent. of the people live in villages and depend almost wholly on agriculture. About 85 per cent. of the population are Hindus, and only 14 per cent. are Moslems. But the latter, living mainly in the towns, have considerable

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influence in the province. There are few large towns in the United Provinces, but they are all of great importance from the viewpoint of history or religion.

Agra (230,000), which rivalled Delhi and Lahore as a centre of the Mogul Empire, contains the Taj Mahal, the entrancingly beautiful tomb of the wife of a Mogul emperor. Agra is now important as a railway junction and for its cotton-mills and wheat market. Muttra (53,000) is a Hindu religious centre to the north-west of Agra, and Hardwar, where the Ganges enters the plains, is another centre of pilgrimage.

Meerut (137,000), lying north-east of Delhi, is a trade centre for cotton and wheat. Moradabad (111,000), situated east of Meerut, is a market for sugar, wheat, and rice, and manufactures cotton goods and brassware.

Cawnpore (244,000) is an important railway and commercial centre on the Ganges and the natural collecting centre for a wide area. It has cotton-, woollen-, flour-, and jute-mills and manufactures of sugar, leather, and other goods. Lucknow (275,000), on the Gumti, was the capital of Oudh, and is still the largest town in the United Provinces. It is important as a railway centre, with railway workshops and foundries, and has a number of small manufacturing industries.

Allahabad (184,000) stands at the junction of two navigable waterways, the Ganges and Jumna, and is now an important railway and commercial centre, collecting grain, oil-seeds, cotton, and sugar from surrounding districts. Allahabad ('the Abode of Allah') is a very important place of Hindu pilgrimage, besides being the official capital and chief educational centre of the United Provinces.

Benares (205,000), the most holy city of the Hindus, is the chief place of pilgrimage, to which multitudes of believers come in order to wash away their sins in the sacred waters of the Ganges—the life-giving stream of the fertile plains. Benares derives much trade from the

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pilgrims, and is also a great distributing centre. Its handicrafts in brassware, silk, silver, and wood are justly famous.

Bihar, the section of the Ganges plains lying immediately east of the United Provinces, contains more than half the population of the province of Bihar and Orissa.

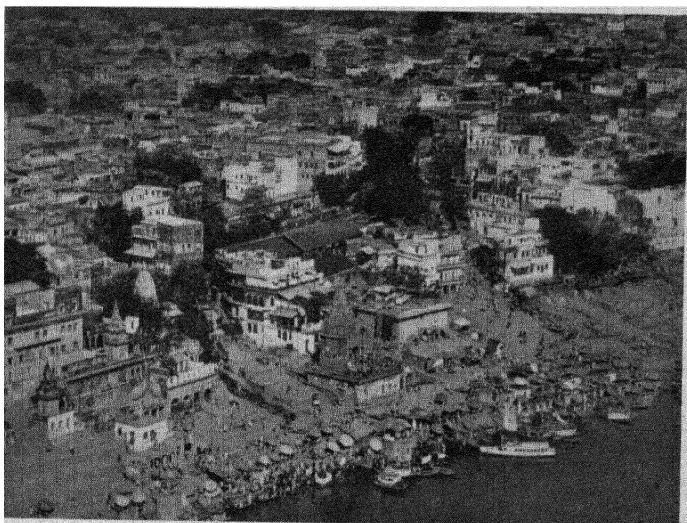


FIG. 58. THE BATHING GHAT AT BENARES

The long slope of steps (the *ghat*), leading to the river, is often crowded with pilgrims who have come to bathe in the sacred waters of the Ganges.

Royal Air Force official photograph. Crown copyright reserved

Bihar resembles the United Provinces in that the bulk of its people are Hindus engaged in agriculture. The increased rainfall is reflected in the greater cultivation of rice, which is here much more important than wheat, and in the small reliance upon irrigation. The rivers have built up their banks and filled in their beds with silt to such an extent that the water-level is actually above that of the adjoining plains, which are thus liable

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to flooding. Three-quarters of the land is under crops, yet the population is so dense that large numbers of peasants carry on cultivation only during the rainy season, and add to their means of livelihood by working in the jute-mills and docks of Calcutta or the tea-gardens of Assam. The people live in poor huts on their small farms rather than in villages, and there are few large towns.

Patna (160,000), on the Ganges, commanding an important route to and from the plateau by the Son valley, is the capital and largest town of the province. It is a centre for agricultural produce—rice (the fine-quality 'Patna rice' is exported to Europe), indigo, which is declining in competition with coal-tar dyes, and opium, which has also diminished in importance.

Assam. In the past Assam has been governed as part of Bengal, but since 1912 it has been a Governor's province. Assam, with an area of 77,500 square miles, is the smallest and the least developed of the Governors' provinces. More than half the province consists of hilly country, some ranges, such as the Khasi Hills, running east and west, others, such as the Patkai Hills, trending north and south. The hills are exposed to the summer monsoons, and so have a very heavy rainfall, although sheltered valleys are much drier. The lower slopes are densely forested, with bamboo jungles in deserted clearings, and the high ridges are grassy. The long, parallel ridges and valleys of Eastern Assam make communications extraordinarily difficult, so that one finds a great variety of languages and customs among the different isolated groups of peoples. Much of this eastern hill-country is still unsurveyed; but the wild, picturesque hill tribes are being tamed, and settlers from the plains are penetrating their country.

The densely wooded ranges of Central Assam are more accessible, and considerable areas are cultivated, although there are still some backward peoples in certain parts.

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On the northern slopes facing the Brahmaputra there are many tea-gardens, and elsewhere cotton and fruits (notably oranges) are grown. Shillong, the capital of Assam, is beautifully situated at a height of 5000 feet among the Khasi Hills.

The most important sections of Assam are the great valley of the Brahmaputra in the north and the smaller Surma valley in the south. These valleys contain more than three-quarters of the population of the province (9,248,000). Over one-half are Hindus, and nearly one-third are Moslems.

The Brahmaputra valley of Assam is about five hundred miles long, but only about fifty miles wide. The great river itself is broad, and frequently consists of a number of channels, flanked by useless marshes. Nearly 90 per cent. of the people are engaged in agriculture. Rice is widely grown on the alluvial flats for home consumption, and tea, the most important export of Assam, on the gentle slopes farther away from the river. Tea, normally grown on well-drained slopes, is increasingly planted on the flat lands, which are ingeniously drained to avoid damage to the bushes. Jute is grown near the borders of Bengal, while at the eastern end of the Brahmaputra valley there are two small oilfields and a small coalfield.

The development of the tea industry, due mainly to European enterprise, is the chief factor in the rapid growth of population and settlement in Assam. The European planters secure labourers from various parts of India, chiefly the North-east Dekkan, Bengal, and Madras, and more than half a million of ex-tea-garden coolies have become permanent settlers on the plains or in the hills. Native boats use the Brahmaputra, and there are railway connexions with Calcutta.

Bengal. The British first set up their trading factories in Bengal in 1633, and it was the conquest of Bengal by Robert Clive that paved the way for British dominion in India. The province has undergone many boundary

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changes, its present shape having been fixed in 1912. Bengal is a little smaller than Great Britain, and its population of 51,087,000—larger than that of any other Indian province—gives a greater density than that of Britain. Apart from the relatively small and thinly peopled hill areas of the extreme north and east, Bengal consists of a huge low-lying, fertile alluvial plain. The greater part is made up of the combined deltas of the Ganges and Brahmaputra, forming in the south a bewildering maze of rivers and creeks. The region of swamps and stunted forests round the mouths of the delta is known as the Sundarbans. The forests provide timber and firewood. Temperature conditions in Bengal are more equable than elsewhere in the Ganges plains. Rainfall is exceptionally heavy for about eight months, and during the rains there are extensive floods, especially in Eastern Bengal. The delta is still pushing farther out into the Bay of Bengal, and during the floods fertile soil is deposited over a wide area.

In race and language the people of Bengal are more uniform than those of any other province. About 45 per cent. are Hindus in religion, the rest being Mohammedans whose ancestors, for the most part, were converts from Hinduism. The Bengalis are by nature alert and intelligent, but unhappily the vitality of great numbers is sapped by the ravages of malaria. The abolition of this terrible scourge is one of the greatest problems facing the province.

Agriculture occupies 77 per cent. of the people, whose scattered farmsteads may be seen rising above the general level, often on artificial mounds. The rest of the population are nearly all engaged in industry and trade. The rice-producing area is roughly three-quarters of all the land under crops. Eastern and Central Bengal comprise the main jute-producing areas of the world. Tea production is important in the northern hills, where Darjeeling, the hot-weather capital, is beautifully situated at over

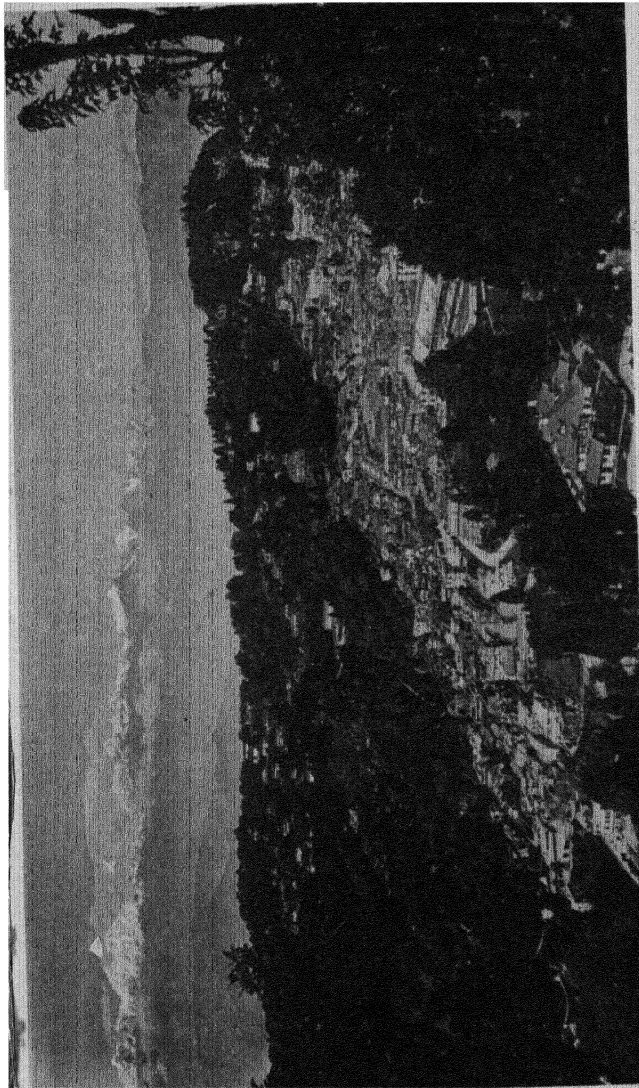


FIG. 59. VIEW OF DARJEELING AND THE HIMALAYA MOUNTAINS
The densely wooded foot-hills rise to the lofty snowclad peaks in the distance.
By courtesy of the High Commissioner for India

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Nagpur and Orissa, which are parts of the province of Bihar and Orissa, practically all the rest of Peninsular India is composed of Indian states, of which the largest is Hyderabad. Several tiny French and Portuguese possessions are included in the peninsula.

Physically Peninsular India consists of the great triangular Dekkan plateau, with its gentle slope drained by the Mahanadi, Godavari, Kistna, Cauvery, and other rivers to the broken Eastern Ghats and the coastal plains on the east and its high escarpment of the Western Ghats descending steeply to a much narrower coastal plain on the west. The extensive basalt plateau of the north-west, the long westward-flowing Narbada and Tapti, and the northern mountain-ranges—Aravalli, Vindhya, and Satpura—are other features of note. The temperature is high everywhere in the peninsula throughout the year; the Western Ghats and the north-eastern parts of the region have heavy summer rainfall; the south-eastern area—the Carnatic—has most rainfall in winter, from the retreating monsoon; and the interior and north-west of the peninsula have only a moderate summer rainfall.

Rajputana. The Rajputana Agency, covering an area greater than that of the British Isles, and having a population of 11,513,000 (mainly Hindus), includes twenty-one states and one chiefship. The largest states are Jodhpur, Bikaner, Jaipur, and Udaipur. The western part of Rajputana, which extends far beyond the plateau, includes the greater part of the Thar, or Great Indian, Desert, a thinly peopled region of bare hills and sandy wastes, where there is no water for irrigation. Camel-caravan routes cross the desert, but railways traverse only its margins. Wherever water is available there are oasis-villages, and Bikaner (70,000) is a prosperous market town, with manufactures of carpets and camel-hair cloth; it is also a railway centre. Eastern Rajputana is a plateau drained to the Ganges. Some of the hilly areas are forested and form the home of the primitive Bhils; but

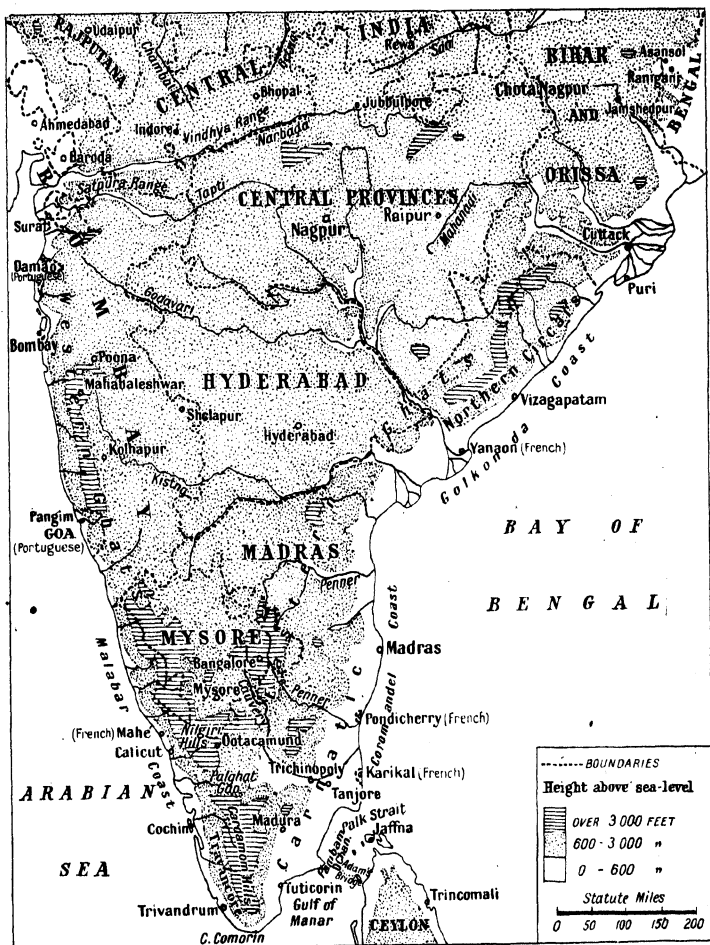


FIG. 61. PENINSULAR INDIA
For the railways of this region see p. 193.

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the rainfall is so unreliable that there are great variations in the crops of millet and other cereals, and the population is consequently small. Sheep, goats, and camels furnish raw materials for making carpets, blankets, and clothing, and cotton cloth is also made. Important railway routes from Delhi and Agra to Bombay and Karachi pass through the largest towns of Rajputana. Ajmer (120,000), the capital of the small British province of Ajmer-Merwara, is an important railway and market centre, with a flourishing trade in cotton and salt. It manufactures cotton goods and has railway workshops. Jaipur (144,000), capital of the native state of Jaipur, is the banking and business centre of Rajputana, and has several manufacturing industries. Udaipur is the capital of the hilly state of Udaipur, or Mewar. The British Agent for the Governor-General of Rajputana resides in the hill-station of Mount Abu.

Bombay Presidency. The important Governor's province of Bombay consists of British districts covering 123,599 square miles, with a population of more than 21,800,000, and Indian states with an area of 27,994 square miles and a population of 4,400,000. The majority of the people live on the coastal plains. In the province as a whole 64 per cent. of the population are dependent on agriculture. The cotton crop is particularly valuable: large quantities are exported, mainly to Japan, and the home manufacture is extremely important. More than half the looms are in Bombay Island. The seafaring peoples of the coastal belt of Bombay Presidency, largely Mohammedans, provide many of the lascars, or Indian sailors, who form the crews of ships sailing in Eastern waters. Many of the coastal peoples are successful traders. The Parsis, living mainly in Bombay City, co-operated with Europeans to build up great industries—cotton-mills in the Presidency itself and at Nagpur, in the Central Provinces, three great hydro-electric power-works in the Western Ghats, and iron-works at Jamshedpur (Bihar and

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Orissa). But the Mahrattas, a powerful military people in the past, and the Brahmins of the Dekkan take little part in trade and industry.

Sind, which is part of Bombay Presidency, has already been described. South-east of Sind lies Cutch, separated from the mainland by an immense tract of salt marsh, known as the Rann of Cutch. The Rann during most of the year is a barren plain of sun-baked mud, but from July to November it is covered with brackish water, owing to the south-west monsoon raising the level of the Arabian Sea and damming back the waters of rivers flowing into the Rann. Cutch itself is almost as useless as the Rann. The large peninsula of Kathiawar, south of Cutch, has rather uncertain rainfall, so that much of the country is bare and unproductive. But the central hills are well forested, and in the better-watered valleys there are settlements growing cotton and wheat, usually with irrigation. Salt is produced along the coast, and on the west limestone is quarried as a building-stone and for cement-making.

The remainder of the coastal belt of Bombay is well watered by the exceptionally heavy summer rains of the south-west monsoon. These winds drive strong waves shoreward, thus building up sand-dunes along the coast. Behind the dunes lies the coastal plain, in most parts only about thirty miles wide, where numerous swift rivers from the Western Ghats have formed alluvial fans of great fertility, and their waters, held up by the dunes, usually form shallow lagoons, bordered with paddy-fields and coconut-palms. Rice covers about half the land under crops, and is easily the chief food. The coconut-palms everywhere furnish many useful products. In the north the coastal plain of Gujerat is much wider, and on its rich black volcanic soil cotton and sugar are grown, in addition to the all-important rice. In this northern section Ahmedabad (314,000) is the largest town. It is an important railway centre, with manufactures of cotton,

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silk, leather, and pottery. Baroda (113,000), the capital of the small but well-peopled Indian state of Baroda, is another railway junction with similar industries. Surat (120,000), standing fourteen miles up the Tapti river, was long important as the first British trading factory in India, established in 1612. It has cotton-mills, rice-mills, and paper-mills. Surat commands important routes, now followed by railways—northward through Baroda to Delhi, southward to Bombay, and eastward along the Tapti valley to Nagpur and Calcutta, with a branch along the Narbada valley to Allahabad. As a port and industrial centre, however, Surat has been eclipsed by Bombay.

Bombay City (1,161,000) is built on a small island (twenty-two square miles in area), which shelters the finest natural harbour in India.¹ Causeways (carrying road and railway) and breakwaters link Bombay Island with the much larger Salsette Island, and thence with the mainland, and also give additional shelter for the magnificent island-studded bay. Bombay has grown very rapidly since the opening of the Suez Canal in 1869 and the construction of railways through two natural gates across the difficult barrier of the Western Ghats. The line through the Thal Ghat leads to Allahabad, Nagpur, the Raniganj Coalfield, and Calcutta. The line through the Bhore Ghat runs to Poona and Madras. The coastal railway northward through Surat has already been mentioned, but there is no railway striking southward along the coast, owing to the difficult nature of the narrow plain. The opening of the Suez route to Europe made Bombay the great gateway to the Dekkan, and the railways gave access to that rich hinterland, with its great cotton crops. Bombay is now largely European in architecture and appearance, and is the governing, financial, commercial, and intellectual capital of the Presidency.

Bombay has a great export trade in raw cotton, oil-

¹ See frontispiece.

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seeds, wheat, and timber. Its moist atmosphere is favourable to cotton-spinning, and a great cotton-manufacturing industry has been built up with the aid of cheap native labour and the abundant electric power generated by the streams of the Ghats. India itself is, of

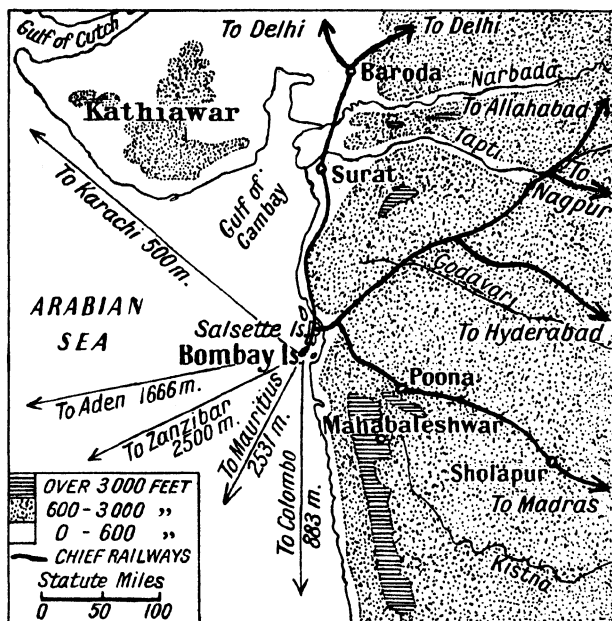


FIG. 62. POSITION OF BOMBAY

course, the great market for the cotton goods of Bombay. Sugar, metal goods, and machinery are imported. Other industries of importance are silk manufacture, dyeing, tanning, and metal-working. Industrial developments are mainly in the hands of Parsis, but the population is very cosmopolitan, more than 80 per cent. being foreign-born. Coal for shipping and railways is brought from the Dekkan.

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The first hydro-electric power-station on the Western Ghats was opened in 1915, and since then others have come into operation. The greatest project of all aims at building a reservoir on the Koyna tributary of the Kistna to supply power for the development of industries south of Bombay, notably the production of aluminium from the huge deposits of bauxite scattered over India.

The steep slopes of the Western Ghats are densely forested. Teak is especially important, the logs being floated to the coast down the swift streams. The Dekkan portion of Bombay Presidency lying immediately beyond the summit of the Western Ghats is densely peopled. The greater part of this region is the western section of the black soil formed by the weathering of the lava plateau which extends into the Central Provinces and Hyderabad. The North-west Dekkan is a region of plains and flat-topped hills, whose moisture-retaining lava soils, despite the rather light rainfall, permit the cultivation of millet as the chief food crop and cotton as the chief cash crop.

Poona (250,000), standing at a height of 1800 feet above the sea, commands all the Dekkan routes to Madras. Poona has cotton-mills, iron and brass foundries, paper-mills, and native handicrafts. It is an important educational and military centre and the early summer seat of the Bombay Government. During the hottest months the Governor resides at Mahabaleshwar, high up on the Western Ghats. Sholapur (145,000) and Kolhapur (56,000) are the chief of the collecting centres of Bombay Presidency, and have industries similar to those of Poona.

Madras Presidency has an area of 142,277 square miles and a population of 47,194,000. Over 70 per cent. of the people are engaged in agriculture; nearly 80 per cent. speak the Tamil or Telugu tongues; the great majority are Hindu by religion and Dravidian by race. About 6,000,000 belong to the depressed classes. Of 3,306,000 Moslems the most important are the Moplahs, a fanatical

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people living on the west coast. They are the descendants of Arab sailors and of converts from outcast Hindus. The number of Christians (1,774,000) is larger than in any other province.

There is a great contrast between the western and eastern sections of Madras, largely due to different climatic conditions. The western coast, known as the Malabar Coast, which includes the important native state of Travancore (capital Trivandrum, with 73,000 people), resembles the coastal belt of Bombay, but the temperature range is smaller and the dry season shorter. Most of the coastal lagoons have been linked together by canals, and some are harbours with access from the open sea, where fishing is an important occupation. The lowlands produce abundant crops of rice, and there are many plantations of coconut-palms and areca-nut palms. The areca-nut, wrapped in the leaf of the betel plant (a creeper similar to the hop), is the favourite stimulant chewing-mixture of the peoples of India. Copra and coir, besides ropes and mats of that fibre, are exported, and coconut-palms also supply wood for building and for fires, leaves for thatching, and coconut-oil. In the forested hills of the western region the most valuable trees are teak and sandalwood. In the clearings pepper and cardamoms (whence the name Cardamom Hills) are grown, partly for export, while European enterprise is responsible for the tea, rubber, and coffee plantations. The tea-gardens of the Nilgiri Hills are noteworthy. Cochin, capital of the small native state of Cochin, stands on a lagoon harbour that has been deepened for ocean-going vessels. Calicut (82,000), the port reached by Vasco da Gama in 1498, is a picturesque old town. Like Cochin, it still retains some of its ancient trade in pepper and spices, and exports teak. It commands the Palghat Gap between the Nilgiri and Cardamom Hills, through which the railway runs to Madras City.

The eastern part of Madras Province is largely the

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region known as the Carnatic, the name Coromandel being applied to the coast. It includes a broad alluvial coastal plain, rising on the west to the hilly country. In marked contrast with the rest of India the Carnatic has its maximum rainfall in winter, from the retreating monsoon. The rainfall is variable and uncertain, and innumerable tanks or small reservoirs are scattered over the country. Nearly all of them, however, contain water for only part of the year, so that the dense population brings the menace of famine. Government irrigation-works have greatly reduced the danger, the most important being the canal systems for irrigating the whole of the Cauvery delta. The Mettur dam on the Cauvery, opened in August 1934, is one of the largest in the world. It has converted a mountain valley into a huge lake sufficient to irrigate 1,500,000 acres and to increase the output of rice by 150,000 tons a year. The precarious life of the cultivator has led to extensive emigration to the plantations of Ceylon, Mysore, Malaya, and Burma. Rice, the most important crop, is grown mainly on irrigated land, the drier areas and the hills being devoted to millet. The hill pastures support many sheep. Other resources are cotton, sugar, ground-nuts, tobacco, and, along the coast, coconut plantations, salt, and fisheries, including pearl fisheries. Tuticorin, the centre of the pearl fisheries of the Gulf of Manar, is an important port, with a steamer service (150 miles) to Colombo. Tuticorin has a considerable export trade and a cotton industry. The largest inland town is Madura (182,000), an important centre of agriculture, cotton manufacture, dyeing, and native textiles. Trichinopoly (143,000), on the Cauvery, is a town of similar importance, with cigar factories. Tanjore (65,000) is another trade centre.

Madras (647,000), capital of Madras Presidency and fifth port of India, stands on a coast devoid of good natural harbours, so that vessels must anchor offshore and passengers and goods be conveyed in small, flat boats

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through the heavy surf. This partly explains why so great a proportion of the trade of Southern India passes through Bombay. Madras, however, has a costly modern artificial harbour, enclosed by two long moles, for ocean-going vessels. Frequent dredging is necessary to free the harbour entrance from the vast sand deposits drifted along by the monsoon winds. Many important routes meet at Madras. There are railways to Calicut, Bombay, Calcutta, and Tuticorin, while through the city the Buckingham Navigation Canal, in all nearly 250 miles long, provides sheltered water for small vessels. The hinterland of Madras is not so extensive or rich as that of the other great Indian ports. The chief exports are leather, hides, and skins: others of importance are cotton, tea, tobacco, and teak. Madras has many industries, including cotton-mills, tanneries, cement- and tile-works, iron foundries, and cigar factories.

It is important to note that the sea-routes to Europe must pass round Ceylon, instead of going direct through Palk Strait into the Gulf of Manar. The string of rocky islets and sandbanks known as Adam's Bridge forms a barrier that can be crossed only by coasting-vessels through the artificially deepened Pambam Channel. The summer seat of the Madras Government is Ootacamund, in the Nilgiri Hills. The Laccadive Islands and Minicoy, lying off the Malabar Coast, are administered by the Governor of Madras. The primitive Mohammedan tribes of these islands depend mainly on coconut-palms.

The north-east of Madras Province consists of a coastal belt known as the Northern Circars. This belt is backed by the Eastern Ghats, beyond which lies an unhealthy forested, hilly region, inhabited by primitive tribes and quite undeveloped. The deltas of the Godavari and Kistna, fringed with mangrove swamps, form the only broad extent of lowland on this coast, which in climate and products closely resembles the plain of the Carnatic. Farther north, towards Orissa, the rainfall increases,

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and rice becomes the staple crop. Elsewhere millet is important, although heavy crops of rice are grown on the irrigated delta-lands. Spices are important, and the hill pastures support sheep.

The Eastern Ghats form such a barrier that none of the ports in the Northern Circars has much trade. But Vizagapatam, one of the most sheltered ports on the coast, is likely to develop in the near future, on completion of a modern harbour and of a railway to Raipur, in the Central Provinces.

Orissa, part of the province of Bihar and Orissa, includes the rest of the east-coast plain, the Mahanadi and other rivers forming great mangrove-fringed deltas. Rice is the chief crop. The heavy rainfall sometimes causes disastrous floods. The population of Orissa is almost wholly Hindu. Puri, a healthy town on the coast, attracts many pilgrims to the Jagannath (or Juggernaut) Temple. Cuttack (51,000), on the railway from Madras to Calcutta, is the ancient capital of Orissa.

The greater part of the Dekkan proper forms the Chota Nagpur section of Bihar and Orissa, the Central Provinces and Berar, and certain native Indian states, notably Hyderabad, Mysore, and the Central India Agency.

The province of Bihar and Orissa, formed in 1912, is the most artificial unit of all the Indian provinces, for it united three widely different areas—Bihar, Orissa, and Chota Nagpur. Bihar and Orissa have already been described. Chota Nagpur is a wild plateau, with forested hills and open uplands dissected by fertile valleys. About half of the population consists of very primitive tribes, who have taken refuge in this rather inaccessible country, and there is great variety of languages. Rice, maize, millet, oil-seeds, and pulses are grown by these tribes, and lac¹ is collected in the forests. More civilized peoples are slowly penetrating the region, and the rich mineral wealth of the eastern part has led to important develop-

¹ See p. 178.

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ments, especially on the great coalfield, which extends into Bengal. At Jamshedpur, in the south, as has been said, are the great Tata Iron- and Steel-works, employing 30,000 workers. The unskilled labourers are mainly from the aboriginal tribes, which also furnish workers for the tea-gardens of Assam and of the Ranchi district of the Chota Nagpur plateau itself. Ranchi is the hot-weather seat of the Government of Bihar and Orissa. The northern part of the plateau is the most important source of mica in the world.

The **Central Provinces and Berar** lie in the heart of the Dekkan, almost surrounded by Indian states, and are constituted as follows: British districts 82,149 square miles, 12,100,000 people; Berar 17,708 square miles, 3,400,000 people; Feudatory States 31,176 square miles, 2,100,000 people.

Five-sixths of the total population are Hindus. The whole region is almost entirely devoted to agriculture.

The western half of the Central Provinces, including Berar (formerly part of Hyderabad), consists of most of the black-soil region of the Dekkan, and its Mahratta peoples grow the chief cotton crops of India. Throughout the Central Provinces millet is the chief food crop; wheat is also important; rice is grown in the river valleys, and oil-seeds for export.

Nagpur (215,000), the capital of the Central Provinces, stands midway between Calcutta and Bombay, and is a railway junction. It has important cotton-mills. Coal and iron are mined to the south of the city. Jubbulpore (124,000) is another cotton-manufacturing town. It commands the important routes of the Narbada and Son river valleys, used by the easiest railway route between Bombay and Calcutta, and a gap leading south to the Godavari valley.

The **Central India Agency** (with Gwalior) is another plateau region divided up into a large number of Indian states, having in all an area exceeding 77,000 square miles

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and a population of 10,156,000, mainly Hindus. The most important states are Gwalior, Indore, Bhopal, and Rewa. Wheat and cotton are the leading crops. The chief cities are the capitals of the native states bearing the same names. Gwalior has a famous rock fortress and commands important routes. Indore (127,000) is an important collecting centre near the Narbada valley. Bhopal (45,000) is a railway junction, and has manufactures of cotton and jewellery.

Hyderabad is the largest¹ and most populous of the Indian states. In area it is a little less than Great Britain, and its population is 14,436,000. Most of the people are Hindus, but the ruling house is Mohammedan, descended from the original Nizam—*i.e.*, 'Administrator'—appointed by the Mogul Emperor in 1713. The western half of Hyderabad includes part of the black lava soils region, with its crops of cotton and oil-seeds. The eastern half of Hyderabad is part of the Dekkan proper, and includes the upper valleys of the Godavari and Kistna. This southern part of the great plateau, including Mysore, is largely covered with red porous soil of decomposed volcanic rock called laterite. Lying in the rain-shadow of the Western Ghats, the whole region has rather light and uncertain rainfall, and the multitude of tanks cannot always ensure sufficient water for irrigation. The red soils are rather poor, so that in Eastern Hyderabad the yield of crops is low. Millet is the chief grain, as in all the drier, hilly parts of India. Much of the land is a dry type of pasture, supporting large numbers of sheep, besides cattle and horses, for which great quantities of fodder are grown. Coal, mined along the eastern border, is the only mineral of note: the famous diamond-mines of Golkonda are no longer important. Hyderabad (467,000), the fourth largest city of India and capital of Hyderabad State, is a great collecting and distributing centre. It has cotton-mills.

¹ Kashmir is larger, but includes vast areas of almost uninhabited land.

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Mysore is another native state, a little smaller than Scotland, with a population of 6,423,000. The mountainous western half of Mysore has forests of teak and sal. The drier, more level eastern half has much flat land suitable for rice cultivation by irrigation, although millet, sheep, and cattle are characteristic of the land, as in Hyderabad. Manganese ore is mined in Western Mysore, but the most valuable mineral is the gold of the Kolar goldfield in the east, which employs hydro-electric power generated by the falls of the Cauvery river. Mysore (84,000), capital of the state, has manufactures of textiles, brass, and earthenware. But Bangalore (306,000), at the junction of several railways, is a more important town and the seat of government. Bangalore has many industrial establishments, notably cotton-, woollen-, and silk-mills, oil-mills, railway workshops, and brick-works.

FRENCH INDIA

French India, with a total area of 196 square miles and a population of 286,000, consists of five small provinces, mostly in the Carnatic. The chief towns are Pondicherry (the governing centre and chief port), Karikal, Chandernagore (near Calcutta), Mahé (on the Malabar Coast), and Yanaon. The principal crops are rice, manioc, and ground-nuts. Cattle, goats, and sheep are reared. Pondicherry has three cotton-mills; there is also a jute-mill at Chandernagore, and a few oil-presses for ground-nuts.

PORTUGUESE INDIA

Portuguese India consists of three small areas: (1) Goa, on the Malabar Coast, which contains the capital, Pangim (or Nova-Goa); (2) Damão (100 miles north of Bombay); (3) Diu, a small island 140 miles west of Damão. The total area of Portuguese India is 1460 square miles, and the population is 569,000. All three areas are important for

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salt, and manganese is obtained south of the capital. Goa is connected by railway with the lines of British India. The chief exports are coconuts, fish, spices, caju-nuts, salt, and copra.

EXERCISES

1. Point out the advantages of Delhi as a capital when compared with Calcutta.
2. Draw sketch-maps to show the position and importance of Allahabad, Peshawar, Karachi, and Calcutta.
3. Draw sketch-maps of (a) the Ganges plain, (b) the Indus basin, (c) the Dekkan, to show the distribution of their chief products, the main lines of communication, and the ports.
4. Why is Bombay of greater importance as a port than Madras?
5. Draw a map to show the distribution of population in India, adding explanatory notes.
6. Write a descriptive account of the Himalayan region.
7. What are the leading geographical contrasts between the basins of the Indus and Ganges?

CHAPTER IX

BURMA AND CEYLON

BURMA

As early as 1612 the East India Company had trading-posts in Burma. During the nineteenth century various parts of Southern Burma (including Lower Burma) were conquered by Britain, and in 1886 Upper Burma was annexed. From that date until 1935 Burma was a province of British India. But this arrangement was purely one of convenience, for Burma is cut off from India proper by practically impassable mountain barriers, and differs from India in structure, in peoples, and in history. Contact with India is invariably by sea, Rangoon being 700 miles from Calcutta and 1000 miles from Madras. The uniformity of Burma in race, language, culture, and religion is in striking contrast with the diversity of India. The Government of India Act of 1935 has recognized the geographical independence of Burma by granting her political separation from India.

Burma has an area of 261,610 square miles—more than twice that of the British Isles. Included in the province are the Federated Shan States (62,335 square miles), each under its own chief, and certain remote districts not yet administered (7117 square miles).

The population of Burma is 14,667,000, and consists mainly of Mongol peoples, who have entered the country from the north. Like the Tibetans, they have broad, flat faces and straight black hair. Both men and women wear a bright-coloured cylindrical silk skirt (the *lungyi*) and a short jacket. The Burmese are bright, cheerful, and easy-going, in marked contrast with the average Hindu. Buddhism is the predominant religion, and the country

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contains thousands of pagodas, including many of great beauty. The villages are invariably surrounded by a wall to keep out wild beasts and robbers, and just outside stands the Buddhist monastery, which also serves as a school. There is consequently far less illiteracy among both sexes than in India. Burmese women enjoy a measure of freedom and independence unrivalled in India. There are no marked extremes of wealth or of poverty, no aristocracy, apart from the ruling house, and the average standard of living is higher than in India proper. Hence many Indians enter Burma as labourers, and many have become permanent settlers. There are now about 1,000,000 Indians in Burma, approximately equal numbers of Hindus and Moslems. The majority are men, and as they usually take a Burmese wife their descendants tend to be absorbed into the Burmese population. The Burmese speak languages akin to Chinese, and Chinese itself is growing in importance in Burma.

In the mountainous frontiers of Burma there are certain wild tribes, such as Chins, Kachins, and Palaungs. The Shans, living mainly in the Shan States, number about 1,000,000 and are Buddhists. The Karens, numbering about 1,200,000, live mainly in the east and in the delta region, and include many converts to Christianity. Other peoples of importance are Chinese (150,000), chiefly craftsmen and merchants, and Europeans (10,000), mainly British. The Burmese have so far been content to leave large-scale industry and commerce in the hands of foreigners—British, Indians, and Chinese—and most modern developments have been due to these foreign elements.

Physically Burma consists of three north-south structural units:

(a) The western young fold mountains are a continuation of the Himalayan system, curving southward through the Patkai and other hills. The chief range in Burma is the Arakan Yoma, which rises to over 10,000 feet. These

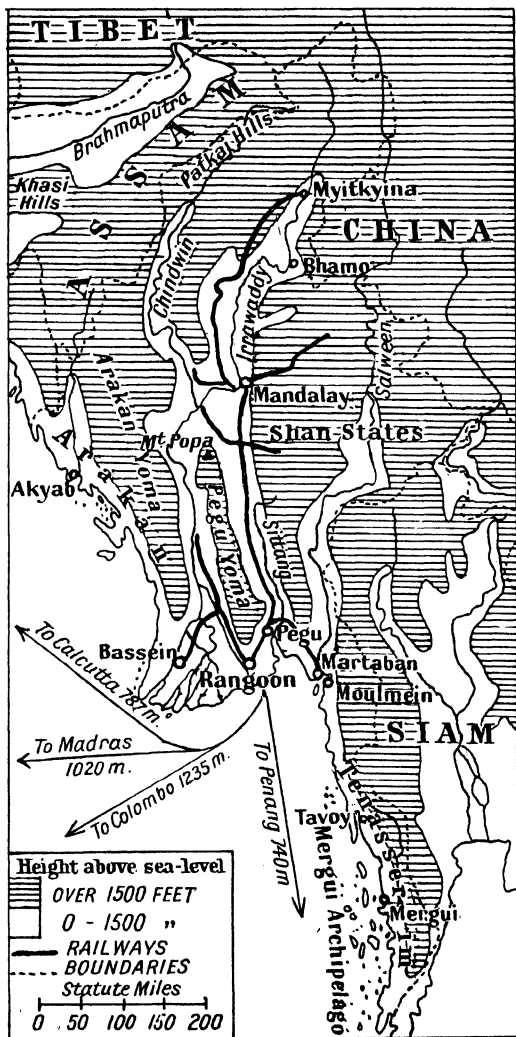


FIG. 63. RELIEF, TOWNS, AND COMMUNICATIONS OF BURMA

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densely forested ridges make communication with India and China exceptionally difficult. The mountains are continued in the Andaman and Nicobar Islands.

(b) The Shan plateau rises abruptly in the east, forming an undulating country of ancient rocks about 3000 feet high, levelled and smoothed by prolonged weathering and extending southward into Tenasserim. The plateau is dissected by numerous river valleys, notably that of the Salween, an extraordinary river (1750 miles long) which drains a large area in Eastern Tibet before flowing southward through a long, narrow, straight, deeply trenched valley, receiving no tributaries, except in its lower course. The chief rocks of the Shan plateau are gneiss, in which rubies, sapphires, jade, and other famous gems occur, and limestone, which is honeycombed with caverns and tunnels dissolved out by streams. Extensive deposits of silver-lead are worked and smelted in the north of the plateau, the refined silver and lead being sent by rail to Rangoon for export. Tin and tungsten (or wolfram), a metal used in making certain special steels, are mined in Tenasserim. The coasts of both Tenasserim and Arakan are rocky and fringed with many islands, notably the Mergui Archipelago, off Tenasserim.

(c) The central basin of Burma is formed by two parallel valleys, the western containing the lower Irrawaddy and its tributary the Chindwin, the eastern containing the upper Irrawaddy and the Sittang. These valleys are composed of young Tertiary rocks, laid down in what was once a great gulf, and largely covered with alluvium deposited by the rivers. Between the valleys there are hill-ranges, of which the Pegu Yoma is the chief, and there is in the north a remarkable string of volcanic cones, culminating in Mount Popa, almost 5000 feet above the sea. The important oilfields of Burma occur in the central basin, and considerable deposits of lignite await future exploitation. Oil is also found in the coastal islands of Arakan.

BURMA

Like India, Burma has a monsoon climate,¹ with very heavy rainfall from the south-west summer monsoon on exposed mountainous coasts. Arakan and Tenasserim have nearly 200 inches annual rainfall, while the delta region has about 100 inches. The winds penetrate far inland in summer, so that Bhamo, for example, has an annual rainfall of 72 inches. The middle valley of the Irrawaddy, however, is so sheltered that Mandalay has only 33 inches, and part of the area has less than 20 inches a year. Temperature conditions are equatorial in the coastal districts, but inland the range increases, Mandalay having an annual range of 10° F. More than half of Burma is forested. The wettest lands, up to about 3000 feet, have dense evergreen tropical forests, mainly of very hard timbers. Regions with a rainfall between 40 and 80 inches have monsoon forests, the trees shedding their leaves in the hot-weather season. Teak is the most valuable tree of the monsoon forests.² Wild elephants, tigers, leopards, and other game are numerous in the remoter forests. The dry interior, with a rainfall of less than 40 inches, is mainly poor woodland, scrub, and even semi-desert. Many areas of forest have in the past been burned by the Burmese farmers in order to make clearings for crops. With the exhaustion of the soil the clearings were left to become in most cases jungles of bamboo, grass, and bracken. For over half a century, however, the Government Forest Department has carefully controlled the cutting of timber, and thus preserved from destruction the extensive forests that still remain. The Government forest reserves equal Scotland in area, and Burma is the world's chief source of teak. The teak logs are allowed to dry for three years before export.³ Elephants are trained to drag the logs to the rivers for floating

¹ See the climate maps of India, Burma, and Ceylon, pp. 172 and 173.

² For the products of Burma see the map on p. 197.

³ Teak when fresh will not float in water, so the tree is killed by cutting off large rings of bark, and is then allowed to dry before floating downstream.

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down as rafts to Rangoon and to move and pile the logs in the port itself.

The great majority of the population of Burma is dependent on agriculture, and so is concentrated on the rich soils of the delta and the river valleys. Two-thirds of the land under crops are devoted to rice, and as the annual production is over half a ton per head of the population there is a large surplus available for export.

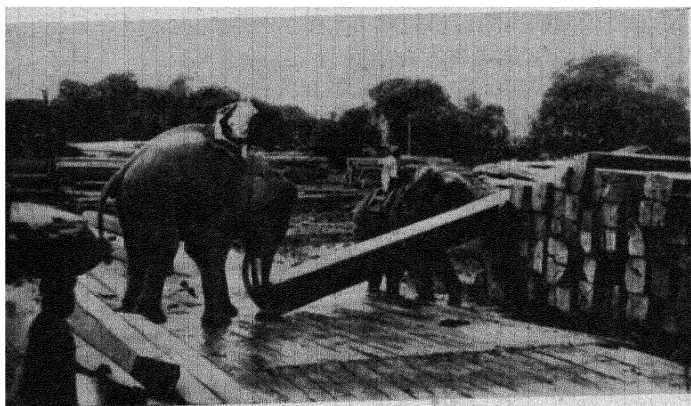


FIG. 64. ELEPHANTS PILING TEAK IN BURMA

One elephant is raising the log to the top of the pile, while the other pushes with his trunk. Elephants in Burma are taught to exercise their great strength with remarkable skill.

By courtesy of the High Commissioner for India

In the dry heart of Burma irrigation is practised, and the chief crops are sesame, millet, beans, ground-nuts, and cotton. There are rubber plantations in the wetter regions, especially Tenasserim, and cutch, used in dyeing and tanning, is obtained by boiling the chopped-up heart-wood of the sha-tree of Lower Burma. Land available for future cultivation is at least twice the area of that already under crops, so that agriculture in Burma is capable of great expansion. Humped oxen and water-buffaloes are commonly employed in ploughing, haulage, and

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transport. Fishing is an important occupation, salt fish accompanying boiled rice as the staple diet of the Burmese.

The Irrawaddy and its tributaries have always been the chief means of communication in Burma. The main stream is navigable for large vessels as far as Bhamo—nearly 1000 miles. Most important inland towns are river-ports. Bhamo is the starting-point for difficult tracks into the Yunnan province of China. There are over 2000 miles of Government railways, all metre-gauge and mainly used in conjunction with the rivers. The main line connects Rangoon with Mandalay, and beyond the Irrawaddy it is continued to Myitkyina, in the upper valley of the river. There are few good motor-roads, and travel over much of the country is still by bullock-cart, elephant, or mule.

The great exports of Burma, in order of value, are rice, petroleum, and timber. Most export trade is carried on with India (rice), Ceylon (rice), and Britain (rice, petroleum, timber). India and Britain supply between them the bulk of Burma's imports—cotton goods, machinery and hardware, coal, silk, and sugar.

Mandalay (148,000), the old native capital and only large inland city, stands on a narrow plain eight miles wide between the Irrawaddy and the Shan plateau, and is the centre of important river and railway routes. It has rice- and timber-mills, and is noted for native industries, such as work in silver, wood, embroidery, and brass.

Akyab is the port of Arakan. Tenasserim is served by Moulmein, a port for teak and rice at the mouth of the Salween, and, farther south, by Tavoy and Mergui. Bassein, on the most westerly distributary of the Irrawaddy, exports rice and timber.

Rangoon (400,000), the capital and greatest port of Burma, is a modern city built on Rangoon river, one of the eastern distributaries of the Irrawaddy delta. River and railway traffic converges on the port. More than

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five-sixths of Burma's trade passes through Rangoon, which has important industries—rice-mills, oil-refineries, and saw-mills—based upon its great exports. Carving in wood and ivory and beautiful silver-work are well-known native industries.

THE ANDAMAN AND NICOBAR ISLANDS

The rock-structure of the Arakan Yoma is continued southward by the coral-fringed Andaman and Nicobar Islands, which are governed by a Chief Commissioner on behalf of the Government of India.

The **Andaman Islands** consist of the five large islands of the Great Andaman, the single island of Little Andaman to the south, and about two hundred islets, the total area of the whole group being 2508 square miles. The islands have an equatorial climate and are densely wooded, the most important tree being padauk, or Andaman redwood, a fine cabinet wood. Over one-third of the land area has been cleared, and there are successful plantations of coconuts, rubber, Manila hemp, and sisal-hemp.¹ Cattle and goats are increasing in importance.

The population of 15,000 consists mainly of Hindus, nearly half of whom are convicts. The islands have been used since 1858 as a convict settlement, but this arrangement will cease shortly, as the Government of India is encouraging free settlers to come from India.

Only a few hundred aborigines remain. They are of negro type, small in stature (men about 4 feet 10 inches), black-skinned, and curly-haired. The climate makes clothing unnecessary, and the natives wear only belts, necklaces, or other ornaments. Bows and arrows, spears, stone hammers, and knives of bamboo or boars' tusks are their chief weapons. The race is dying out.

Port Blair (14,000), standing on a fine harbour sheltered

¹ Sisal-hemp, or henequen, is the fibre of the 'agave, or American aloe, used for making ropes and ships' cables.

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from the south-west monsoon, is the seat of the Chief Commissioner. It is a wireless station, and a weekly mail-steamer links it with Rangoon, Calcutta, and Madras. There are several other good harbours.

The Nicobar Islands were annexed in 1869. Of the twenty-one islands (total area 635 square miles) twelve are inhabited. The native population of 10,000 is increasing. The people are of Mongol stock, having crossed from Indo-China two thousand years ago. For at least fifteen hundred years the Nicobarese have traded in coconut products. The present annual production is about 15,000,000 nuts, of which more than half are sold by barter and exported as copra in the small native craft and in Chinese junks. The fine Nankauri Harbour is sheltered between Nankauri and Camorta Islands.

CEYLON

Ceylon, known to the ancients as Taprobana ('Dusky Leaves'), is a pear-shaped island lying south-east of the Carnatic coastal plain of Southern India, with which it is clearly connected physically, the two being separated by the shallow Palk Strait and almost united by the line of rocks and sandbanks known as Adam's Bridge. In some respects, however, Ceylon differs from Peninsular India in history, climate, and economic development.

The first Portuguese coastal settlements in Ceylon date from 1505, but they passed into the hands of the Dutch over a century later. In 1796 the British added the foreign settlements of Ceylon to the Presidency of Madras, but in 1802 converted them into a separate Crown colony, to which the rest of the island was added in 1815, after a rebellion by the King of Kandy. From time to time changes have been made in the administration of the colony, and the island is now governed by the Governor (representing the British Crown), assisted by a State Council, whose members are nearly all elected by the

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votes of adults of both sexes. For convenience of government the island is divided into nine provinces, varying in area from 1432 to 4009 square miles—roughly equal to the larger English counties. The total area of Ceylon is 25,332 square miles (about half the size of England without Wales). The population of 5,313,000 consists mainly of Sinhalese (or Cingalese), descendants of an Indo-European race from India who conquered the island in the sixth century and later were converted to the Buddhist religion. In the north of Ceylon the inhabitants are largely Tamils from Southern India, many of whom are employed on tea, rubber, or coffee plantations. The Tamils are naturally Hindus by religion. On the west coast, especially near the middle, there are many descendants of North African Moors, Mohammedan in faith, who gain their livelihood as traders, sailors, or fishermen. The other sections of the population are the Burghers, who have much Portuguese or Dutch blood, modern Europeans (over 8000 in number), who are mainly shipping employees and soldiers, and the Veddas, the remnant of a primitive hill tribe still lingering in the remoter mountain districts. There are nearly 500,000 Christians in Ceylon. The majority of the population speak either Sinhalese or Tamil, but English is the chief commercial and official language. The population is concentrated mainly on the well-watered plains of the west and south and in the hills. Over 62 per cent. are engaged in agriculture, 12 per cent. in industry, and nearly 8 per cent. in trade. Only 13 per cent. of the population live in towns.

Ceylon has a broad coastal plain, flat or gently undulating, from which rises abruptly a mountain mass with peaks of 7000 or 8000 feet. Pedrotallagalla (8292 feet) is the highest mountain, but Adam's Peak (7360 feet) is more famous. The highland mass of Ceylon consists of ancient crystalline rocks similar to those of the Dekkan, with which it was once connected. These ancient rocks contain plumbago, or graphite, which is exported for making lead

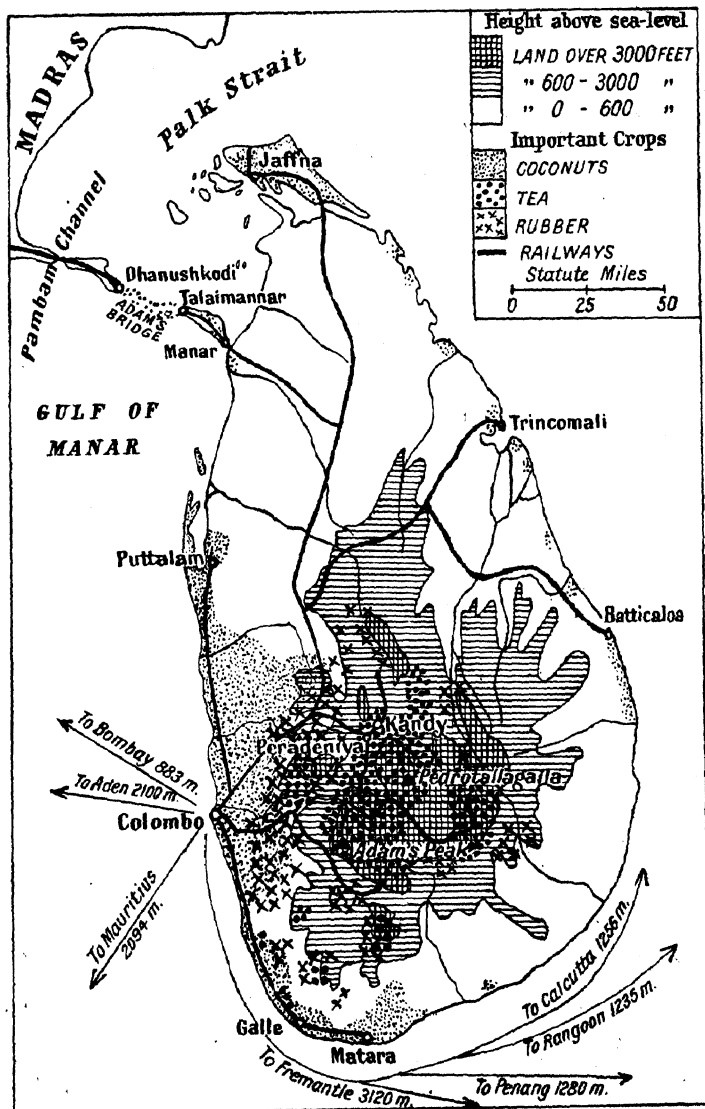


FIG. 65. RELIEF, PRODUCTS, TOWNS, AND COMMUNICATIONS.
OF CEYLON

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pencils and lubricants, and the gems for which Ceylon has long been famous—bright-blue sapphires, blood-red rubies, pearly moonstones, bluish-violet amethysts, and brilliant cat's-eyes (a beautiful variety of quartz). The same ancient rocks underlie the rest of the island, but the coastal plains are largely composed of a thick layer of laterite, a porous rock, reddish in appearance (owing to iron oxides), formed by the weathering of the ancient rocks. Laterite is employed as road metal and as building-stone, and in the wetter areas it forms a fertile soil. The northern part of the island consists of soft limestone. Many rivers come down from the mountains, but they are of little value for navigation, owing to their swiftness and the silting up of their lower courses. In many cases the river-mouths have been dammed by the sand-dunes built up all round the island by sea and winds, so that coastal lagoons are common. Jaffna and other islands and peninsulas in the north are covered with sand. Much of the coast of Ceylon is fringed with coral reefs.

Ceylon has a delightful climate. Its nearness to the equator gives it almost the same insolation and length of daylight throughout the year, and the surrounding sea also helps to maintain uniform temperature conditions. The coastal districts have monthly temperatures round 80° F., that of Colombo ranging from 79° F. to 82° F. Land-breezes at night and sea-breezes by day are characteristic of the coasts. The diurnal temperature range between day and night is small, amounting in Colombo to only 12° F. Hill-towns at about 6000 feet have a monthly temperature round 60° F.—like a perpetual English summer. Seasonal changes depend upon rainfall, which varies widely in different parts of the island. Ceylon is exposed for about six months to the south-west monsoon of the Indian summer. This brings heavy rainfall between June and October to the mountains and the west and south-west coasts. During the rest of the year the north-east monsoon is blowing, giving heavy

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rainfall to the mountains and the north-east coast, especially from October to December. The north-west and south-east shores are the driest parts of Ceylon.

Practically the whole of Ceylon is suited to forest-growth, varying in type and density in accordance with different rainfall and temperature conditions. A large part of the forest-land has been cleared for plantations, but the Government is conserving the remaining forests, which yield satinwood, ebony, and other timbers and firewood. About one-fifth of Ceylon is densely forested, and about one-fifth is under cultivation. On the lowlands and lower mountain-slopes the forests are of equatorial type. Above 5000 feet trees of temperate type are common, and on plateau areas about 6000 feet up there are open stretches of tall grasses, flowering plants, and rhododendron-trees. There are mangroves on many of the lagoons and estuaries, but the forests are of drier scrub type in the north-west and south-east, owing to the smaller rainfall. The Ceylon elephant, which is smaller than the African, is carefully preserved from destruction. Other creatures of interest are the small black bear, cheetah (a variety of leopard and the fastest running animal), monkéys, deer, wild buffalo, wild boar, jackal, squirrels, crocodile, snakes, and brightly plumaged birds.

Ceylon produces many crops of commercial importance. Tea, grown on the hill-slopes, is easily the most important, furnishing over half the value of all exports. The tea-bushes are plucked at intervals of eight to ten days, and after two years they are pruned to three feet or less, in order to renew their vigour. Rubber plantations cover an area greater than that of tea, and are mainly found in the lower hill-country. Indeed, during years when rubber prices were high many tea-gardens and cacao plantations were converted into rubber plantations. The rubber-trees are ready for tapping in their sixth year, the latex draining into cups fixed at the base of half-spiral cuts. Most of

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the workers are Tamil coolies. The annual export value of rubber is about one-fifth of that of tea. Another important product of the hills is cacao, grown mainly north and north-east of Kandy. Coffee, once the leading crop, has been unimportant since the ravages of plant disease afflicted the crop and hastened its replacement by tea half a century ago. Rice is a very important crop in the hills, where the slopes are carefully terraced for paddy-fields, as well as on the wet coastal plains. Yet Ceylon does not produce sufficient for her needs, and rice is the chief import (mainly from Burma), accounting for one-quarter of the value of all imports.

Of the crops grown on the broad coastal plains the coconut-palm is by far the most important. Coconut-palm plantations cover a larger area than any other crop (roughly twice that of tea or rubber); the coasts are fringed with coconut-palms, but the plantations are mainly concentrated in the west and south-west. The coconut-palm is of extraordinary value to the natives of Ceylon, and also furnishes a variety of valuable exports, of which the chief are copra, coconut-oil, desiccated coconut, coir, and fresh nuts. The only manufactures of importance are connected with the products of tea, rubber, coconut, and cacao plantations.

The spices of Ceylon have been famous for centuries. Cardamoms, pepper, nutmegs, and cloves are grown, but cinnamon, mainly employed as a flavouring commodity, is the most important for export. The cinnamon-bushes are kept six to eight feet high, and the cinnamon is obtained by peeling off the inner bark of young shoots. Areca-nuts¹ and citronella-oil (obtained from a grass) are the only other crops of importance in export trade. But tobacco, kapok,² sisal-hemp, cotton, and fruits (pine-

¹ See p. 237.

² Kapok is the silky fibre covering the seeds of a kind of cotton-tree. Its lightness has led to its use as a substitute for feathers in pillows and for cork in lifebelts.

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apples, bananas, mangoes, and bread-fruit) are worthy of mention.

Ceylon has 1,580,000 cattle, chiefly important (as in India) for farm-work, but also employed as draught animals.

Round the coasts salt is obtained by the evaporation of sea-water from the lagoons, and fishing is a common occupation in the shallow seas. The pearl fisheries of the Gulf of Manar are under Government control, and oysters are brought up by the skilful Tamil divers only in those years when inspection shows that there are sufficient mature oysters to make fishing worth while.

Over one-half of the exports of Ceylon go to Great Britain, tea, rubber, and coconut products being the leading items. The United States rank next as a customer of Ceylon, with rubber as the chief commodity. India, Great Britain, and Burma supply between them the bulk of the import trade of Ceylon. India sends cotton goods and wheat; Britain furnishes cotton goods, iron and steel goods, machinery, tobacco, and coal; Burma supplies rice.

The railways of Ceylon link Colombo with other important sections of the island, including the hill centres, where construction was difficult and costly. One line runs out to Talaimannar, at the end of the Manar peninsula, whence steamers cross the twenty-two miles (equal to the Dover-Calais route) to Dhanushkodi, the terminus of the South Indian Railway. Excellent motor roadways have been constructed in many districts. It is thus easy to travel in comfort through scenery of unforgettable beauty or to visit places of historic interest.

Kandy (37,000), picturesquely situated in the hills, was the old capital of Ceylon, and is the largest inland town. Its climate is ideal, save when the hills are shrouded in dense rain-clouds, perhaps for weeks together. Kandy is the Buddhist centre of Ceylon, and possesses the Temple of the Tooth, which contains a tooth of the Buddha. A

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few miles to the south-west stand the famous botanical gardens of Peradeniya. Ceylon is probably the finest country in the world for the scientific study of tropical plant life.

Jaffna (46,000) is the natural centre of the limestone plain of Northern Ceylon, where cultivation is partly dependent on tank reservoirs. Trincomali, on the north-east coast, has one of the finest harbours in the world, but lies off the main traffic routes. It is used as a naval base for refuelling oil-burning warships. Galle (38,000) was for a long period the chief port of Ceylon, but was found to be dangerous for modern vessels. Its small natural harbour has a rocky entrance and is exposed to the south-west monsoons. Galle is now only a port of call for small coasting-steamers.

Colombo (284,000) has grown rapidly since the construction of its splendid artificial harbour, protected from the south-west monsoon by a long breakwater. Colombo is the modern capital of Ceylon, and handles almost the whole of its foreign trade. It is the natural junction of all the highly important routes of the Indian Ocean, and is thus one of the most important coal and oil-fuel depots in the world. It has an immense entrepôt trade, handling cargoes destined for other parts of the world.

The Maldivé Islands, thirteen coral islets, lying 400 miles south-west of Colombo, are a dependency of Ceylon, to which their sultan pays a yearly tribute. The islands produce coconut-palms, millet, and fruits. The 79,000 Mohammedan inhabitants are noted sailors and traders.

EXERCISES

1. Write a concise account of the natural resources of Burma.
2. Justify the political separation of Burma from India.
3. Draw maps to show the position and importance of (a) Rangoon, (b) Mandalay, (c) Colombo.
4. Contrast Ceylon with Newfoundland:

CHAPTER X

INDO-CHINA, MALAYA, AND THE EAST INDIES

THE broad peninsula of Indo-China extends, as its name implies, between India and China, and is continued southward by the long, narrow Malay peninsula. Burma, which forms the western part of Indo-China, has already been described. To the south and east lie the many island groups known collectively as the East Indies, or Malay Archipelago. The core of Indo-China consists of an ancient system of fold and fault mountains far older than the Himalayan folds running roughly north-south and continued in Malaya and the southern half of Borneo. The principal rocks exposed are ancient slates and limestone and granite, along the margins of which occur important tin deposits. The Shan plateau is part of this ancient mountain mass. The broad basins of the Menam and Mekong, which flow from north to south, like the Irrawaddy and Salween, are covered with much younger sedimentary rocks. The young (Tertiary) fold mountains of Burma are continued in the great, sweeping curves of Sumatra, Java, Celebes, the Moluccas, the Philippines, and the numerous other islands lying along the margins of the ancient mountain mass. A region of such extensive recent folding is naturally a zone of earthquake and volcanic activity, a zone continued northward, through Taiwan (Formosa), into Japan.

The relief map shows that most of the islands rise from the continental shelf of South-east Asia, and are clearly the higher parts of ancient lands once connected with the Asiatic mainland, from which they are now separated by submerged lowlands.

The climate of Indo-China is monsoonal; that of Malaya and the East Indies is equatorial. There are,

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however, considerable variations in climate due to differences in altitude or exposure to winds.

The Moluccas were the 'Spice Islands' of history, and European peoples from medieval times sought to gain the wealth of the East Indies. The Portuguese were the first to reach these islands, by way of the Cape of Good Hope, early in the fifteenth century. Shortly afterwards the Spaniards reached the Philippines by way of Magellan's Strait. In the sixteenth century the Dutch arrived, and quickly supplanted the Portuguese as the chief traders in the islands. The Dutch still control Sumatra, Java, Celebes, the Moluccas, most of Borneo, the western half of New Guinea, and a large number of smaller islands. All that remains to Portugal is the eastern half of Timor, while Spain ceded the Philippines to the United States after the Spanish-American War of 1898.

SIAM

Siam is rather smaller than Burma in size and population, its area being 198,188 square miles. Its population of 11,506,000 consists mainly of 10,500,000 Siamese, who are closely akin to the Shans of Burma, 450,000 Chinese, 380,000 Indians and Malays, 61,000 Cambodians, and 28,000 Shans. Buddhism is the prevailing religion. The Siamese call their country Thai ('Free') or Muang-thai ('the Land of the Free'), and their country is, indeed, the only independent State of South-east Asia. Siam is an absolute monarchy, the King¹ alone exercising supreme power. A small advisory council and a legislative assembly, however, have been set up. Elementary education is compulsory, except in the capital, and, in the majority of schools, free.

Siam resembles Burma in climate and natural vegetation. Northern Siam consists of north-south forested

¹ King Prajadhipok relinquished the throne and retired to England in 1935. He was succeeded by his nephew, a boy of eleven.

INDO-CHINA

mountain-ranges, chiefly drained southward by the head-streams of the Menam. The broader alluvial valleys

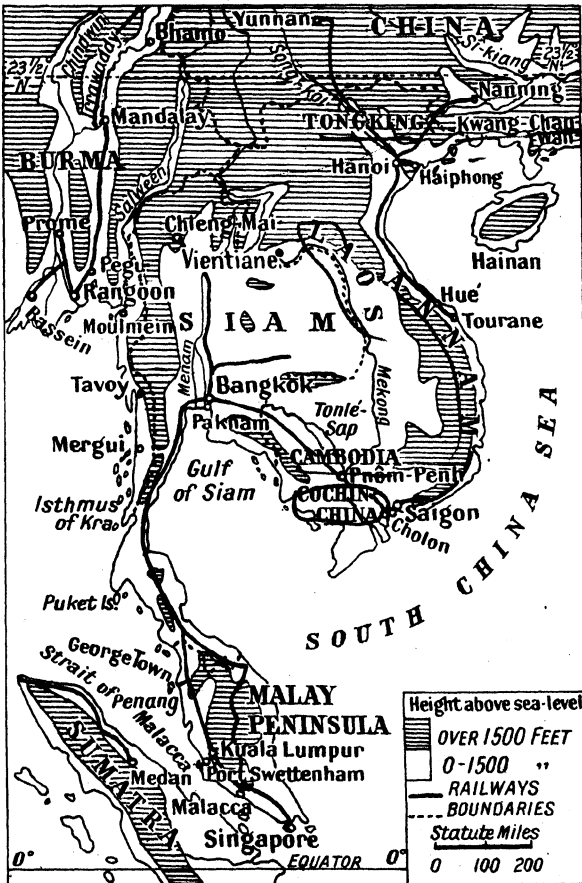


FIG. 66. SIAM, FRENCH INDO-CHINA, AND MALAYA

form rich agricultural land. Chieng-mai, the centre of this mountainous region, is connected with Bangkok by

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railway. Teak is an important product from these northern forests, the industry being almost entirely in British hands. The dry logs are floated down to Bangkok in the rainy season.

The plain of Eastern Siam, drained eastward to the Mekong and encircled by hills, is a savanna region of little economic importance at present. The most important part of the country is the broad plain drained by the Menam and other sluggish rivers that come down in flood every summer, and have raised their beds above the surrounding levels. The Menam is navigable almost to the northern mountains. It serves as the great trade highway, the water-supply, and the sewer of the many villages and towns that line its low banks. This flat plain of deep alluvial soils is obviously suited to extensive rice production, and rice is the staple diet and the chief export of the country. The annual yield is about 5,000,000 tons. Pepper, tobacco, cotton, sugar, millet, and betel-nuts are also important, and the country has nearly 5,000,000 bullocks, over 5,000,000 buffaloes, over 300,000 horses, and nearly 11,000 elephants. A number of important irrigation projects, coupled with protection from floods, have been completed in the central plain, mainly with a view to increasing rice production. Chinese coolies perform most of the skilled and unskilled labour in this region, as also in the tin-mines of the long, narrow peninsula of Southern Siam.

The peninsula of Southern Siam adjoins Tenasserim in the north and British Malaya in the south. It is a belt of beautiful mountains, small fertile plains supporting rice and cattle, and picturesque villages, with golden beaches fringing the deep-blue waters. The narrow Isthmus of Kra almost severs the peninsula about latitude 10° N. Siam is rich in minerals—tungsten, coal and iron, zinc, manganese, antimony, lead, copper, silver, and gold—but tin is at present the only one of importance. Most of the tin-mines are in the southern peninsula, those

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of Puket Island being very famous. Rubber plantations flourish in the Siamese portion of the Malay peninsula.

Fishing is important along the coasts of Siam: fish in some form—raw, cooked, or as a paste pounded up with sand and salt—is eaten with every meal of rice, to make it more palatable and nourishing.

Railways, nearly all State-owned, run from Bangkok northward to Chieng-mai, southward through the southern peninsula to link up with the Federated Malay States Railway and Singapore, and eastward to Cambodia, thus giving connexion with Saigon.

The chief exports of Siam are rice (accounting for about two-thirds of the total value), tin, and teak. The most valuable imports are cotton goods, foodstuffs, metal goods and machinery, tobacco, and paraffin-oil. The bulk of Siam's exports go to British territories in South-east Asia, notably to Singapore and Hong Kong, two great entrepôt ports. The bulk of the imports come from British territories in Asia, the United Kingdom, the Dutch East Indies, Japan, China, and Germany.

Paknam, at the mouth of the Menam, is a seaport, but Bangkok (600,000), twenty miles up the river, is much more important, for it handles 85 per cent. of the foreign trade of Siam. Bangkok is the capital city and the great centre of commerce and transport. There is a bar at the mouth of the Menam river which cannot be crossed by vessels drawing over thirteen feet of water. This fact explains why so much of the country's trade passes through Singapore and Hong Kong.

FRENCH INDO-CHINA

French Indo-China, with an area of about 285,000 square miles and a population of 21,652,000, consists of five States—the colony of Cochin-China and the protectorates of Annam, Cambodia, Tongking, and Laos. In addition France has the lease of Kwang-chau-wan Bay,

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in South China. French Indo-China is the most important overseas possession of France.

The mountains of French Indo-China are southern continuations of those of Yunnan and South China. The north has plateaux of 4000 or 5000 feet and many peaks of over 6000 feet, all lying between the lower Song-koi ('Red River') and the middle Mekong. The highlands continue southward in a sweeping curve, effectively separating Annam, along the coast, from Laos, in the interior, the passes being rather high and difficult. The chief lowlands are those of the Mekong in the south and the Song-koi in the north.

Like Siam, French Indo-China has a tropical monsoon climate, dominated by the south-west monsoon from April to October, causing the rainy season, and by the north-east monsoon from November to March, causing the dry season, except in Annam, which receives most rain between October and February. The temperature is high throughout the year, the hot season in the south being very oppressive.

Tongking has been a French protectorate since 1884. It consists of the valley and delta of the Song-koi and the surrounding highlands. The chief crop is rice, affording a considerable surplus for export, mainly to Hong Kong. Other products are raw silk (most of which is used in native weaving, the remainder being exported), maize, arrowroot, sugar, coffee, tea, fruits, and tobacco. Mining is very important, the chief minerals being coal, zinc, phosphates, tin, wolfram, and graphite. Limestone is quarried for making cement, an important export. Hanoi (127,000), a fine modern city on the Song-koi, is the capital of French Indo-China. Railways from Hanoi run along the Song-koi valley to the tin-mines of Yunnan, north-east to Nanning, south to Hué and Tourane, and south-east to Haiphong; on the Song-koi delta, the chief port for rice, maize, and minerals. Haiphong has important rice-mills.

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Kwang-chau-wan, a small territory on the mainland and two small islands, was leased from China in 1898 for 99 years. It exports straw sacks, pigs, cattle, sugar, and ground-nuts.

Annam is a native kingdom that has been under French protection since 1884. Spurs from the mountains project towards the coast, dividing the coastal plain into small basins and separating Northern Annam, which is connected economically with Haiphong, from Southern Annam, which is linked with Saigon. Rice is the most important product, assisted in some areas by irrigation. Other products are cotton, maize, sugar, areca-nut, silk, cinnamon, tobacco, rubber, tea, and coffee. Cattle-rearing is important. Coal, iron, copper, zinc, and gold are the chief minerals. The leading exports are sugar, rice, cotton and silk fabrics, cinnamon, tea, and paper. Hué (32,000) is the capital and Tourane the chief port.

The **Laos** territory, under French protection since 1893, is the least accessible and least developed section of French Indo-China. Its fertile soils produce rice, cotton, indigo, tobacco, and fruits. Teak logs from the valuable forests are floated down the Mekong to Saigon. The mineral wealth in gold, tin, lead, and precious stones is being developed. The Mekong is the chief highway, steam launches being used in the north, beyond the rapids, which cause a break in navigation. Vientiane, on the Mekong, is the capital.

Cambodia is a native kingdom under French protection. It consists mainly of an extensive fertile plain, drained by the lower Mekong and the Tonlé-sap. The latter river includes a remarkable lake of the same name. During the rainy half of the year the flood-waters of the Mekong flow into the lake; in the dry half of the year the lake empties into the Mekong, leaving many ponds full of fish. Salting and drying these fish for export to China is the chief native industry. Rice is the most

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important crop, furnishing a surplus for export through Saigon. Pepper (a famous product), maize, tobacco, kapok, palm-sugar, and rubber are other products of some importance in the export trade. The cotton and sugar are largely exported to Japan. Only a small part of the fertile area is under cultivation, owing to shortage of labour. Other occupations are cattle-rearing for meat and for draught purposes (hides and cattle are exported), silk- and cotton-weaving, and the making of pottery and rush mats. The valuable forests and minerals have not yet been exploited on a large scale.

Pnôm-penh (96,000), the capital of Cambodia, stands at the crossing of the Tonlé-sap and Mekong rivers, and can be reached by ocean-going vessels. Farther inland lie the ruins of Angkor, with its palaces and temples of an old, vanished civilization.

The French colony of **Cochin-China** is a little smaller than Scotland in area and population, and includes the great delta of the Mekong. Nearly half the area is under cultivation. Rice is the staple crop, its annual production being more than one-third that of all French Indo-China. The other crops resemble those of the other countries of Indo-China, pepper, cotton, copra, and rubber being noteworthy. Water-buffaloes are used in ploughing and transport, and there are many horses and pigs. River and coastal fisheries are important, fish and fish-oil ranking next to rice in export trade.

Saigon (118,000), the capital, business centre, and chief port, is remarkably French in character, despite its largely Mongol population. French vessels maintain regular services with France, and British ships connect Saigon with Hong Kong and Singapore. Saigon serves as port for a very extensive hinterland, including the Mekong valley, although the port lies on a small river east of the Mekong delta. About ten miles south-west of Saigon stands Cholon (123,000), an important industrial centre, half its population being Chinese. Cholon and Saigon have many

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rice-mills, and there are also saw-mills, soap factories, and a varnish factory.

Of French Indo-China as a whole the principal exports are rice (an easy first), rubber, fish, coal, pepper, cattle and hides, maize, zinc, and tin. The chief imports are cotton and silk fabrics, metal goods, petroleum, and motor-cars. Most trade is carried on with France, British territories (Hong Kong, Singapore, and India) ranking next.

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The Malay peninsula, or Malaya, is a continuation of the southern peninsula of Siam and Burma, and almost reaches the equator in Singapore Island. The peninsula has a mountainous backbone of parallel ranges of old hard rocks (granite, quartzite, and limestone), rising to over 7000 feet, with many areas of low, undulating plain. There is an important contrast between the two sides of the peninsula. The west coast has extensive alluvial lowlands fringed with mangrove swamps. Its fertile soils are well cultivated, and the Strait of Malacca, sheltered by Sumatra, is generally calm. The east coast has few areas of lowland, its mountains are densely forested, and it is exposed to the strong winds and heavy-seas of the north-east monsoon. Malaya has an equatorial climate, with very small range of temperature and with heavy rainfall, owing to exposure to the south-west and north-east monsoons. Over most of the peninsula the mean annual rainfall exceeds 100 inches. The daily weather conditions vary but little, the high relative humidity frequently producing dense morning fogs, while afternoon thunderstorms are a common feature. The greater part of Malaya is still covered, even to the mountain-tops, with densely tangled equatorial forests, the species of trees being more numerous than those of India.

Land under cultivation is mainly confined to the coastal districts—above all, to the west coast. Rice is the

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chief food crop of almost the entire population, but about three-eighths of their requirements have to be imported. Water-buffaloes are used in rice cultivation, and cattle imported from India and Siam are employed as draught animals. Coconuts are an important crop, providing a valuable export of copra, and pineapples are very important in and near the island of Singapore. The canning of pineapples is in the hands of a Chinese combine, and the bulk of the exports go to Great Britain. Pepper, palm-oil, areca-nuts, sago, and gambier (a tanning material obtained from a species of cinchona) are other products of note.

The most important crop of Malaya, however, is rubber, grown on plantations. Until the end of the nineteenth century the world's rubber supply came from the Amazon and Congo forests, where it was laboriously collected by men who journeyed many miles in their search for the rubber-trees or -vines. But an Englishman, Henry Wickham, conceived the idea of making plantations of rubber-trees on suitable land cleared for the purpose. In 1876, with the support of the British India Office, he went up the Amazon to Manáos, collected 70,000 seeds of the *Hevea brasiliensis*—the finest rubber-tree—and had them carefully packed on a Liverpool vessel that chanced to be at Manáos without a return cargo. On reaching Pará the ship was allowed to proceed without examination of the cargo, the polite officials having been assured that the ship contained only "exceedingly delicate botanical specimens specially designated for delivery to Her Britannic Majesty's own Royal Gardens of Kew." The seeds were, indeed, planted in the great hot-houses of Kew Gardens, and nearly two thousand of the young rubber-trees were dispatched to the Peradeniya botanical gardens in Ceylon. A year later seedlings from Ceylon were sent to Malaya. With the growing demands for rubber in the motor-car, cycle, electrical, and other industries there came an expansion

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in the production of plantation rubber, slow at first, but later far surpassing in quantity the output of 'wild' rubber. Forest clearings are made for the rubber plantations by felling the trees and then burning the stumps and the smaller vegetation. As the rubber-trees must grow for five or six years before tapping can begin con-



FIG. 67. LAND CLEARED FOR RUBBER-PLANTING IN MALAYA

The land has been carefully terraced in order to prevent soil-erosion by the heavy rains.

By courtesy of the Malayan Information Agency

siderable capital is necessary in establishing plantations. Developments are thus entirely in European (mainly British) hands. It is a common practice to grow smaller plants between the rows of rubber-trees, in order to hold the soil, which might otherwise be washed away by the heavy rains. Such plants are periodically cut down and mulched into the soil. Usually the rubber-trees are thinned out to about ninety per acre. The rubber is obtained every other day by removing a thin strip from

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the bark half-way round the tree and allowing the latex to drain into a little glazed earthenware cup for an hour or more, when the coolies, usually Tamils from Southern India, collect it in pails. The latex is coagulated or hardened by adding water and acetic acid, and is prepared for export by being machine-rolled into crêpe sheets, which are then smoked or dried. Perak, Selangor, and Johore are the chief rubber regions.

The rubber industry has brought great prosperity to Malaya. The annual export of rubber grew from 6500 tons in 1910 to over 200,000 tons in most of the post-War years. From the end of 1920, however, the price of rubber began to fall rather alarmingly, owing to overproduction and the cessation of war demands. As Malaya and Ceylon, both under British control, were responsible for three-quarters of the world's supply the Stevenson Restriction Scheme was put into operation in November 1922, with the object of raising prices by restriction of output. The price immediately rose from 9*d.* to 1*s.* 4*d.* per pound, but in succeeding years the Dutch East Indies, which were, of course, outside the restriction scheme, steadily increased their output, and in November 1928 the British restrictions were removed. The attempt to control prices had failed, and in 1932 the price of rubber actually dropped below 2*d.* per pound, with very disastrous results in Malaya and elsewhere. Excessive production, due to excessive planting at times when prices were high, is the main cause of these disasters. There has been little decline in the demand for rubber. In fact, the consumption in 1933 was higher than in any previous year. After prolonged secret negotiations the chief rubber-producers (Malaya, the Dutch East Indies, Ceylon, Borneo, India, and Siam) have at last agreed upon a plan whereby production and export will be restricted during the period June 1, 1934, to December 31, 1938. The scheme should revive the industry, provided the restrictions do not raise prices to levels that would cause a reduction in world demands.

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Rubber is one of the two great exports of Malaya. Tin is the other, the production amounting to about one-third of the world's output. The tin is obtained by open-cast workings (like great gravel-pits) in the gravel washed down by streams from the crumbling granite mountains. The heavy tin ore is obtained either by taking the gravel to special washing-sheds or by washing away the gravel in the pit with powerful jets of water. Sometimes a dredging-machine may be floated in a large pit dug in a flat valley. The dredger then works its way along, extracting the tin ore and spreading out the waste gravel behind it. The abundance of running water for sluices and hydraulic jets is an important advantage. Most of the workers in the open-cast tin-mines are Chinese. There is still a considerable quantity of tin obtained by the primitive method of panning, Tamil women being the chief workers. The bulk of the tin is obtained from the alluvial gravels of Western Malaya, but the tin ore known to exist in the granites of the north and east is certain to increase in importance. The tin ore is sent to Singapore or Penang for smelting and export, much of it going to South Wales for the tin-plate industry.

Malaya has an excellent system of metre-gauge railways (the Federated Malay States Railway) and metalled roads on the western side of the peninsula, where most modern developments have occurred. The bulk of Malayan trade passes through Singapore, Penang, and Port Swettenham. The leading exports are rubber, tin, and copra. The chief imports are rice and other foods, tobacco, petroleum, cotton goods, and machinery. Most of the exports go to the United States, Great Britain, and the Dutch East Indies; imports come from the Dutch East Indies, Great Britain, Siam, and India.

Malaya ¹ is entirely under British control, and consists of the following:

¹ The term Malaya is sometimes taken to embrace also the peninsular parts of Siam

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- (1) The Straits Settlements, a Crown colony, which comprise the settlement of Singapore (including the distant Cocos Islands, Christmas Island, and Labuan), Penang (including Province Wellesley and the Dindings), and Malacca. The Governor of the Straits Settlements is also High Commissioner for the Federated Malay States and for Brunei (Borneo).
- (2) The Federated Malay States of Perak, Selangor, Negri Sembilan, and Pahang.
- (3) The Unfederated Malay States of Johore, Kedah, Perlis, Kelantan, and Trengganu.

The Straits Settlements. Penang was ceded to the East India Company in 1786; Malacca was occupied by the Portuguese in 1511, was taken by the Dutch in 1641, and finally became British in 1824. The trading settlement of Singapore was founded in 1819 by Sir Stamford Raffles, who secured the island for the East India Company from the Sultan of Johore. The total area of the Straits Settlements, including dependencies, is 1531 square miles. The total population of 1,114,000 is predominantly Chinese, who arrive in large numbers every year. They are industrious settlers and workers, and many become prosperous merchants. In 1929 alone there were nearly 300,000 immigrants from China and 114,000 from Southern India. The latter are the chief workers on the rubber plantations.

Malacca (38,000) has lost its old commercial importance, and is mainly of historic interest. George Town, or Penang, as it is usually called, stands on a fine harbour on the inner side of Penang Island. It is the second port of Malaya, with a big export of rubber, tin, and copra. Tin-smelting is important. Steam-ferries cross to Province Wellesley, whence there is good railway connexion with Singapore and Bangkok.

Singapore (558,000), the capital of the Straits Settle-

MALAYA

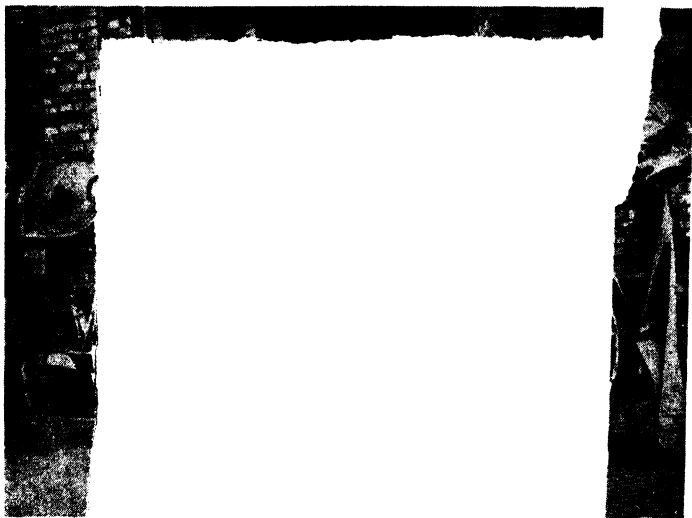
Singapore stands on a magnificent harbour on the south side of Singapore Island, overlooking the Strait of Singapore, which separates it from a group of Dutch islands. Singapore Island is 220 square miles in area—a little smaller than Middlesex. A great viaduct carries the railway across the narrow Johore Strait (under one mile wide) to Johore, on the mainland. Standing at the junction of

FIG. 68. POLITICAL DIVISIONS OF MALAYA

all the important routes between the Indian and Pacific Oceans, Singapore is a kind of half-way house between Europe and the Far East and between India and Australia. It handles about three-quarters of the total trade of the Straits Settlements, and is one of the greatest centres of entrepôt trade in the world, products such as rubber, tin, petroleum, rice, pepper, cotton goods, and fish appearing both as imports and exports. Huge stocks

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of many commodities are stored in warehouses, a thus available for traders. Tin-smelting and preparation are important industries. Coal for shipping is obtained from Selangor and Labuan. Singapore is an important wireless station and cable junction, and because of its strategic importance has been equipped as a naval



Note t

hinese

By courtesy of the Malayan Information Agency

depot, with a huge floating dock capable of taking the largest battleships.

The Cocos or Keeling Islands, a group of about twenty coral islands, lie nearly 1200 miles south-west of Singapore, and have many coconut plantations.

Christmas Island is situated over 200 miles south of Java, and has an area of sixty square miles. Its population of 741 (Chinese and Malays) is entirely employed

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in working the large natural deposits of phosphate of lime, a valuable manure, which forms the only export.

Labuan, a tiny island lying six miles off the north-west coast of Borneo, has a population of 7900 (Malays and Chinese). It supplies coal to Singapore and Hong Kong.

The **Federated Malay States**, occupying the central part of the peninsula, are four Mohammedan States

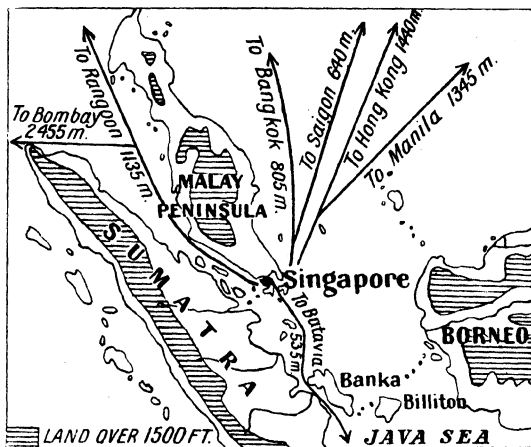


FIG. 70. SINGAPORE AND ITS CHIEF SEA-ROUTES

under British protection, in accordance with a treaty of 1896. Each State controls its own affairs, and a Federal Council deals with matters affecting the States as a whole. The united area of the States is a little less than that of Scotland.

STATE	AREA (SQUARE MILES)	POPULATION
Perak	7,740	725,000
Selangor	3,160	500,000
Negri Sembilan	2,560	222,000
Pahang	13,970	176,000

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The total population of 1,623,000 has nearly twice as many males as females, owing to the great proportion of Chinese and Indian coolies employed on plantations and in mines. The population includes 606,000 Malays, 665,000 Chinese, 325,000 Indians, and 6000 Europeans. The Malays take but little part in industry. The Indians

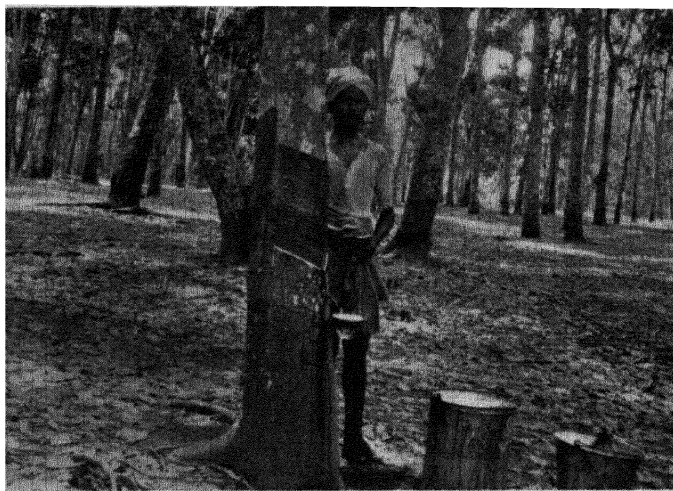


FIG. 71. TAPPING A RUBBER-TREE NEAR KUALA LUMPUR,
MALAYA

By courtesy of Professor P. M. Roxby

work mainly on rubber plantations, while the Chinese play a very prominent part in industry, commerce, and every kind of activity.

The staple products are rubber, tin, coconuts, rice, sugar, tapioca, pepper, gambier, oil-palms, and timber, the first three furnishing the principal exports, which pass mainly through Singapore and Penang. The leading imports are rice and other foodstuffs, cotton goods, petroleum, tobacco, iron and steel, and machinery.

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Kuala Lumpur (104,000), in Selangor, is the largest town and the chief commercial centre. It stands on the main line from Singapore to Bangkok, and is joined by rail and road with Port Swettenham, which has, perhaps, the best harbour in Malaya.

The five **Unfederated Malay States** are Mohammedan States, each governed by its own sultan, with the assistance of a State Council and resident British Adviser. The States are mainly agricultural, producing the same commodities as the rest of the peninsula. Rubber, copra, and tin are the leading exports. Johore, at the southern end of the peninsula, is the most developed State.

The East Indies

The **Dutch East Indies**, or Netherlands India, were conquered successively by the Dutch East India Company, created in 1602, and were taken over by the Dutch Government in 1798. There are two classes of territory—lands under direct Dutch Government and subject native states. The Governor-General exercises absolute control, not directly, but through a numerous body of native officials. In 1925 the Dutch East Indies were granted a measure of self-government in internal affairs.

SUMATRA

The large island of Sumatra is thirteen times the size of Holland itself, but has a smaller population. Sumatra is 1000 miles long, and extends in latitude an equal distance on either side of the equator. A long fold range of sandstone and limestone, with many volcanoes, covers the length of the island. Reaching over 6000 feet in height, it rises steeply near the west coast and falls more gently to the broad eastern plains, which are crossed by numerous rivers. Most of the island is densely forested, and the hot, wet lowlands are unhealthy. Numerous Javanese and

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Chinese immigrants are settling in Sumatra, and rapid developments are taking place. Rubber has become very important; many plantations have been established with European and American capital, and the natives are finding rubber production profitable. The African oil-palm has been introduced on the east coast with great success, the palm-oil being exported in tank-ships. The export is now more than one-quarter that of British Nigeria. The production and export of tea, coffee, pepper, tobacco, and sugar have also increased, much of the output being due to native efforts. Rice and sago are important food crops. Sumatra has considerable mineral wealth, including petroleum in the south-east, coal in the west and south-east, tin, gold, and silver. The chief ports are Belawan Deli, noted for its tobacco, Padang, near a coalfield, and Palembang, near coal and petroleum supplies.

Of the numerous smaller islands near Sumatra Banka and Billiton (or Belitong) are the most important. They are a continuation of the old rocks of Malaya, and likewise contain rich stores of tin. Over 30,000 tons are exported annually from these and the smaller islands to the north-west, most of the mines being under Government control.

Sumatra is separated from Java by Sunda Strait, where the tiny island volcano of Krakatoa produced the greatest explosion in history. In August 1883 over half the island was blown up, the volcanic ash hurtling over twenty miles into the air and circling the upper atmosphere for two or three years, thereby causing the most gorgeous sunsets. About 35,000 people were killed, mainly by the huge fifty-foot waves set up by the eruption. The noise of the explosion was heard 2000 miles away.

JAVA

Java, with its small dependent island of Madura, is less than one-third the size of Sumatra, and its population of 41,720,000 makes it one of the most densely peopled lands

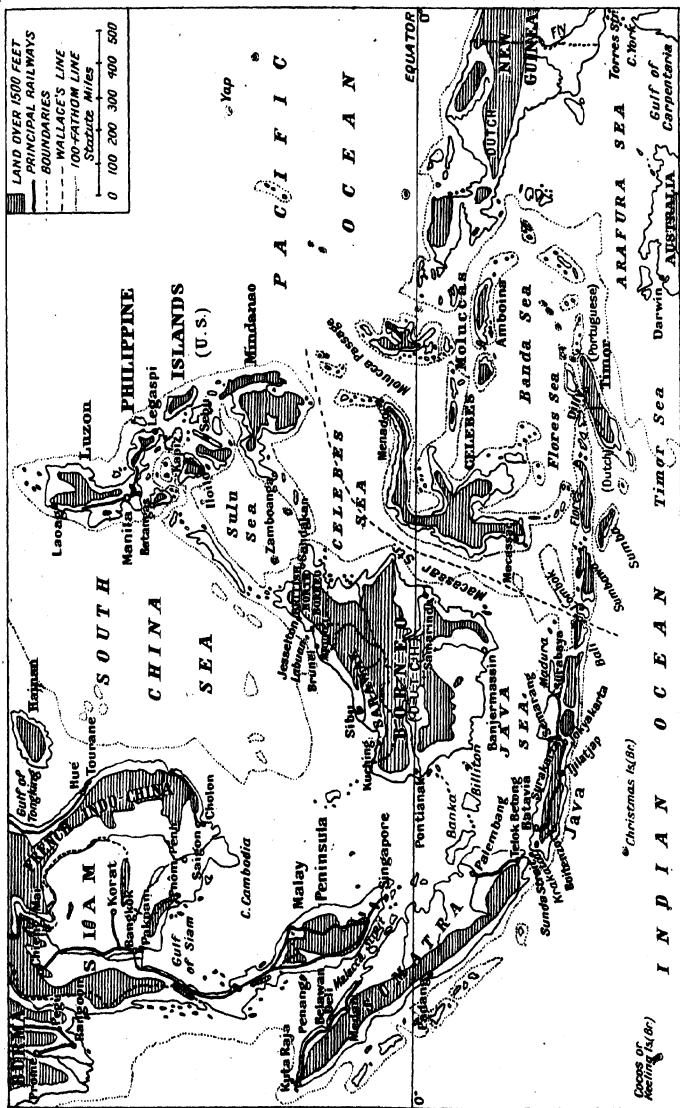


FIG. 72. THE EAST INDIES

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in the world. The population of Java presents many features of extraordinary interest. The native Javanese (numbering 40,890,000) are brown-skinned Mongols, small but sturdy. The great majority are Mohammedans. The Javanese are a vigorous, industrious, and progressive people—a striking contrast to almost every other equatorial race. There are 636,000 other Orientals, including 583,000 Chinese and 52,000 Arabs. There are in Java 194,000 Europeans, mainly Dutch. Unlike the Englishman in India or Malaya, the Dutchman in Java is a real settler.

He has evolved a bungalow residence essentially European in type, except for the well-furnished stoep, or porch, which serves as the principal living-room. He rises

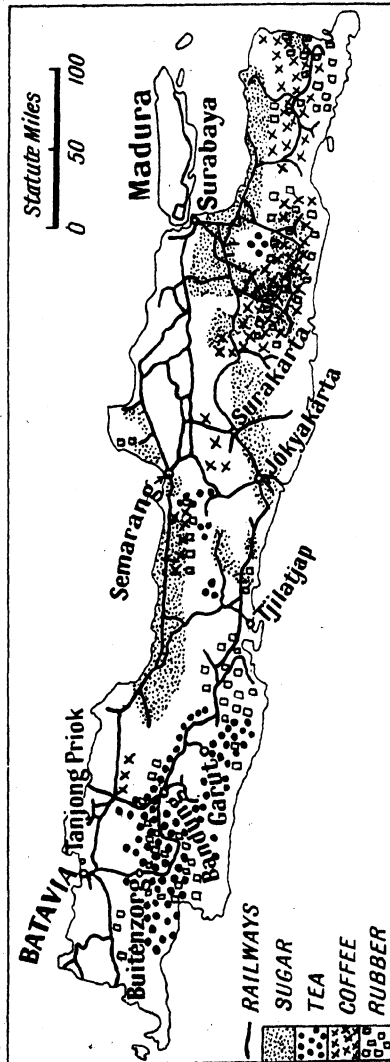


FIG. 73. RAILWAYS, CHIEF TOWNS, AND CROPS OF JAVA

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above the need for the electric fans so inevitable in European dwellings elsewhere in the East; he even rises above the need for the thick sun-helmet; his golden-haired children play bareheaded in the streets almost as they would do in Europe.¹

Java thus affords a unique example of successful equatorial colonization by Europeans, for the Dutch

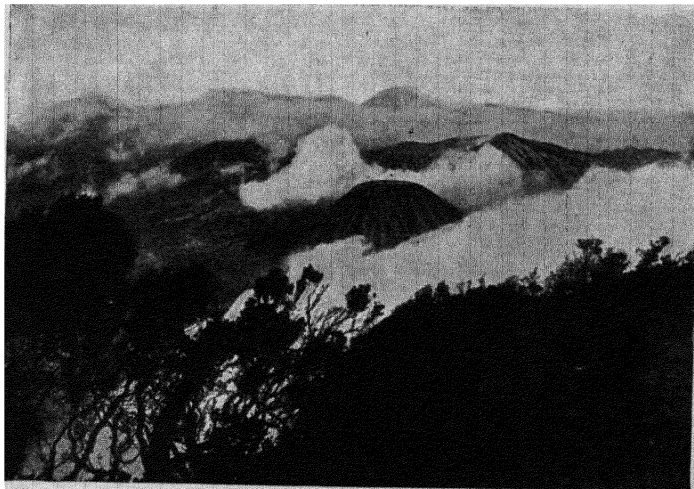


FIG. 74. VOLCANIC CRATERS IN JAVA

Photo E.N.A.

community is quite as healthy as that of the average European or American city. There are in Java a number of excellent hill-stations where Europeans may recuperate if necessary. The Dutch organize all production, development, and marketing in the best interests of the inhabitants.

Java has a backbone of young fold mountains, lying nearer the south side of the island. Many of the loftiest

¹ L. Dudley Stamp, *Asia* (Methuen).

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peaks are volcanoes, some rising to 8000 or even 10,000 feet, and a few are still active. The numerous concave-sided cones dominate the scenery in most parts of Java. An important oil-belt in the north-east extends into Madura. Tin and coal are other valuable minerals. The soils of Java, formed by the rapid weathering of volcanic rocks, are amazingly fertile, and the continuously hot climate with heavy rainfall permits the cultivation of abundant crops at all times of the year. Careful attention is paid to rotation of crops to preserve soil-fertility. Nearly two-thirds of the island is over 600 feet in elevation, but only the highest peaks and ridges are unproductive. Almost half the area is under crops, the rest being densely forested. The slopes are terraced for paddy-fields, and rice, grown largely by irrigation, is the chief food crop. Much of the best-quality rice is exported, and additional supplies have to be imported for home consumption. Other crops of importance grown by the natives are maize, cassava (affording an export of tapioca), sweet potatoes, ground-nuts, soya-beans and other pulses, tobacco (largely exported), potatoes, sugar, indigo, cap-sicum, tea, rubber, coffee, and coconuts (giving an export of copra).

In addition to this native production there are extremely important crops grown on plantations under European or Chinese control. Sugar-cane is the most important plantation crop, confined mainly to the eastern half of the island. Methods of production are highly efficient, so that Java ranks second to Cuba as a sugar-exporter. Tea, the second great plantation crop, is grown on terraced slopes in Western Java. Tea production and export are exceeded only by those of India and Ceylon. Coffee production, chiefly in Eastern Java, varies considerably in output, partly owing to a beetle pest, but the export is normally second to that of Brazil. Other products of note are rubber, cacao, cinchona, and cocaine (from the leaves of the coca-tree). The bark of the cinchona-tree, a native

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of Peru, is the source of quinine, and Java now produces almost the entire world's supply of this valuable medicine. There are teak plantations on the lowlands of Eastern Java. Most of the exports of Java are sent to Holland and there sold by auction to buyers from all countries.

Java has 3,278,000 buffaloes and 4,554,000 other cattle. Most of these animals are employed in the paddy-fields, but there are some dairy cattle fed on the mountain pastures to supply fresh milk for the European inhabitants. The chief native industries are bamboo-hat plaiting, the making of cotton cloth dyed in fancy designs, and copper-working.

Java has a good system of railways and roads, centred upon the chief ports. The high southern coast has only one good port, at Tjilatjap. The three leading ports are on the low northern coast. Surabaya (160,000), the port for the sugar, rubber, and coffee lands of Eastern Java, has a splendid harbour, sheltered by Madura Island. Semarang, on an open roadstead, is the outlet for Central Java, and is joined by railway with Jokyakarta and Surakarta, two large native cities. Batavia (240,000), the capital, port, and centre of entrepôt trade, lies near the western end of the island, and is joined by railway with Buitenzorg, a fine hill-station famous for its botanical gardens, with Bandung, an inland city, and with Garut, a hill-station. The old harbour of Batavia is now a fishing-port, and most trade passes through the modern harbour of Tanjung Priok, five miles to the east.

The Dutch East Indies include many other islands. Bali and Lombok, separated by the deep channel of Wallace's Line, are well-peopled islands resembling Java in many respects. The Timor Archipelago, east of Lombok, has a drier climate, and is more akin to Northern Australia. Timor, the largest island in this group, is divided between the Dutch and Portuguese. The Portuguese section exports coffee, sandalwood, copra, and wax

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through Dilly, the capital and port. Celebes, another Dutch island, is larger than Java. Celebes consists of a number of mountainous volcanic peninsulas, with very fertile soils, radiating from a central highland mass. The Dutch took Celebes from the Portuguese in 1660, but much of the island is governed by native sultans. The inhabitants, of Malayan stock, are vigorous and intelligent. The leading exports are copra, coffee, macassar-oil,¹ spices, and rattan-canes. Macassar, in the south-west, is the capital and chief port. Menado is the outlet for the north-east. The Moluccas, with a total area equal to that of Ireland, are still famous for their spices—nutmegs, cloves, and cardamoms. Sago-palms, from the pith of which the natives can prepare in a month food sufficient for a year, are very abundant. Amboina is the chief port. Dutch New Guinea, the western half of the great Australian island, forms part of the colony of the Moluccas, but is of little importance.

Borneo in the greater part is under Dutch control. Borneo has radiating mountain-ranges closely resembling those of Celebes, but, unlike the latter, it stands on the continental shelf of South-east Asia, and its lowlands have not been drowned. Borneo is free from earthquakes and volcanoes, but the mountain-ranges cut off the various river basins from one another. The hot, wet climate supports dense forests, from which valuable timbers—teak, ebony, sandalwood—are obtained. Dutch Borneo has plantations of rubber, coconut, coffee, pepper and other spices, and tobacco, which furnish exports of value. The chief minerals of Dutch Borneo are petroleum and coal, mainly from the eastern areas. The chief workers are Chinese. Banjermassin, Pontianak, and Samarinda are the leading ports.

¹ Macassar-oil is obtained from certain seeds, and is used in hair-oil and cosmetics. The Victorian 'antimacassar' was a cloth used to protect the backs of chairs or sofas from the greasy hair-oil used by the gentlemen of the period.

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BRITISH BORNEO

British Borneo consists of the three territories of British North Borneo, Brunei, and Sarawak, in the north and north-west of the island. All three territories consist of mangrove-fringed coastal plains, backed by foothills, beyond which rise the lofty ranges of the interior, culminating in Mount Kinabalu (13,680 feet).

British North Borneo is a protectorate controlled by the British North Borneo Company, in accordance with a royal charter of 1881, the land having been granted by the Sultans of Brunei and Sulu. The territory is almost as large as Ireland. The population of 270,000 consists mainly of aboriginal tribes in the interior, with Moham-medan (Malay and Arab) and Chinese settlers on the coast. Of a great variety of products that are exported the chief are timber, rubber, and tobacco (the three most important), sago, rice, coconuts, gums, coffee, nutmegs, cinnamon, pepper, gambier, gutta-percha, camphor, rattans, tapioca, and sweet potatoes. Edible birds'-nests and *bêche-de-mer*¹ are exported to China, where they are much esteemed as delicacies. Petroleum, coal, iron, and gold are present. The rivers are the chief highways of the country, but a railway (127 miles) runs inland from Jesselton, a port on the west coast. Sandakan (14,000) is the port for the east coast. Most of the trade is carried on through Singapore and Hong Kong with Britain and the colonies.

Brunei is a small British protectorate governed by a native sultan assisted by a British Resident. The population of 30,000 includes 2600 Chinese and a very small number of Indians and Europeans. The rest are natives and Malays. The interior forests contain valuable timber, and petroleum has been found. But the chief exports at present are rubber, cutch, jelutong, and dried prawns. Brunei (10,000) is the capital. The old town of Brunei

¹ Also called the trepang, sea-slug, or sea-cucumber.

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is built over the waters of the Brunei river, but since 1910 a new town has been built on the mainland. The native industries of Brunei include boat-building, cloth-weaving, brass-foundries, and silver-working. Most of the trade passes through Singapore, a four days' voyage.



FIG. 75. MALAY HOUSES, SARAWAK (BORNEO)

By courtesy of the Malayan Information Agency

There is a regular service of steam-launches to Labuan, forty-three miles away (see p. 277).

Sarawak,¹ with an area of 50,000 square miles, has many navigable rivers. Sarawak is governed by a British rajah (Sir Charles Vyner Brooke), whose ancestor, Sir James Brooke, an officer of the East India Company, received part of the territory from the Sultan of Brunei in 1842 as a reward for his assistance in fighting against

¹ The final letter (*k*) is not sounded.

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the Dyaks. Under an agreement of 1888 Sarawak is recognized as an independent State under British protection. The population of 475,000 includes Malays and Chinese, besides Dyaks and other native tribes. The Dyaks used to practise head-hunting, mainly to prove their prowess to the eligible maidens of the tribe. Fishing and hunting are their chief resources, but rice and sugar are cultivated in primitive fashion. Usually the women and children live in small huts, while the men live together in great, long bamboo huts, some over 100 yards long, built on ten-foot piles.

Sarawak is a flourishing territory, with valuable resources, including petroleum and coal. Rubber plantations have increased in importance. Petroleum products are the leading export, rubber ranking next. Other exports are pepper, jelutong, sago, and fish. Kuching, the capital, stands twenty-three miles up the Sarawak river. Sibü, sixty miles up the Rejang river, is also important. Trade passes almost entirely through Singapore.

THE PHILIPPINE ISLANDS

The Philippines were ceded by Spain to the United States in 1899, following the Spanish-American War. The Governor-General is appointed by the President of the United States, and there is an elected legislative body—the Senate and the House of Representatives. The islands have had a large measure of self-government, and in May 1934 the legislature agreed to accept complete independence by 1945, in accordance with the wishes of the United States Government.

There are 7083 islands or islets, but only 466 exceed one square mile in area, and only eleven are important. Luzon (40,814 square miles) and Mindanao (36,906 square miles) are the chief islands. The population of 13,055,000 is predominantly Malay, and Christianity is the prevailing religion, due to the long efforts of Spain.

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Mohammedans number 500,000, and pagan hunting tribes, including negroes, total three-quarters of a million. English and Spanish are the official languages of Government and commerce, but about two-thirds of the people use native languages.

The Philippines are very mountainous, forming part of the young folded volcanic ranges that mark the edge of the continental shelf of Eastern Asia. There are numerous volcanoes, many of them still active. Immediately east of Northern Mindanao the sea-bed slopes steeply down to the greatest depth recorded in the Pacific—over six miles. The only mineral production of value is gold; small quantities of silver and platinum are recovered during the refining operations.

The islands are exposed to the Asiatic monsoon winds, and only the western sides have a marked dry season. The northern part of the group lies in the track of the violent cyclonic storms known as typhoons,¹ which are most frequent from July to November. The most valuable product of the forests, which cover 64 per cent of the total area, is cabinet and construction timber, exported in large quantities. Other products are gums and resins, vegetable oils, rattan and bamboo, tan- and dye-barks, and dye-woods.

Under United States influence there has been rapid development in the islands, and the standard of living of the Filipinos has risen considerably. The chief food crops are rice and maize, but cereal production is inadequate, and there are large imports of rice, wheat, and flour. Of a great variety of fruits grown the banana is very important as a food for the people. As yet only 21 per cent. of the total area of the islands is under cultivation, and there is room for great expansion. The number of live-stock is steadily increasing, the chief animals being water-buffaloes and other cattle, pigs, and goats.

The most valuable item in export trade is coconut products—coconut-oil, copra, desiccated and shredded

¹ See p. 307.

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coconuts—in which the Philippines lead the world. The export goes almost wholly to the United States for making soap, margarine, and lard compounds. Coconut plantations are important in all the coastal areas except the north of Luzon, where destructive typhoons may occur.

Sugar ranks as the second great export, the annual output in recent years being four and a half times as great



FIG. 76. FILIPINO HOUSES NEAR MANILA

By courtesy of Professor P. M. Roxby

as that of pre-War years. The competition of this cane-sugar is resented by the beet-sugar producers of the United States, and recently they have supported the proposal for Philippine independence—in order that tariffs may be exacted on Philippine sugar entering the United States.

Abacá, or Manila hemp, is the third great export. The fibre, used for rope-making, is obtained from the stems and leaves of a plant closely allied to the banana-plant. The abacá flourishes on steep hillsides, as it needs

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well-drained soil. Tobacco products (notably Manila cigars), embroideries, lumber, native-made hats, and maguey are other exports of some importance. Rubber-planting is developing. The only large factories are sugar-mills, coconut-oil-mills, desiccated-coconut factories, and cigar and cigarette factories.

Free trade exists between the Philippines and the United States, which take the bulk of the exports and supply most of the needs of the islands. Japan, Britain, and China are also important in the trade of the Philippines. The principal items of import trade are cotton goods, iron and steel manufactures, foodstuffs (meat, dairy produce, flour, etc.), motor-cars, paper, and petroleum products. British and American ships carry most of the overseas trade, but there is a brisk coastal trade carried by domestic vessels.

Sebu (79,000), Iloilo (44,000), Zamboanga (25,000), Laoag (42,000), and Legaspi (35,000) are important collecting centres, but Manila (341,000), on Luzon, is the capital, chief port, and leading industrial centre. Its fine harbour is sheltered from typhoons, and there is a small coalfield to the south-west. Baguio (9500), a hill-station, is the summer capital.

Guam, the largest of the Ladrões, or Marianne Islands, was also ceded to the United States by Spain. It produces copra, rice, timber, and other commodities, but is mainly important as an American naval base, with important cable and radio stations.

EXERCISES

1. On a map of Indo-China indicate the important products.
2. Draw sketch-maps to show the position and importance of (a) Bangkok, (b) Saigon, (c) Batavia, (d) Manila.
3. Briefly summarize the production and trade of Indo-China, Malaya, and the East Indies in rubber, sugar, and tin.
4. "Singapore is the key to the trade of the Far East." Discuss this statement.
5. Why is Java the most important of the Dutch East Indies?

CHAPTER XI

CHINA: GENERAL ACCOUNT

CHINA proper has an area of 1,532,815 square miles, and is thus a little smaller than India. China is divided into eighteen provinces,¹ which have thus an average area nearly equal to that of Great Britain. The largest province, Szechwan, covers 218,533 square miles, and the smallest, Chekiang, 36,680 square miles. China's population of 474,787,000² exceeds that of any other country in the world. The outlying territories of Manchukuo, Sinkiang, Mongolia, and Tibet, which are in varying measures dependent on China, have in all an area nearly twice as great as that of China proper, but their combined populations are probably under 30,000,000.

Although the Chinese are fairly uniform in type, they are a mixture of many different stocks. It is possible, however, that Chinese culture developed on the oases of Central Asia, for the Chinese are above all else agriculturists, strongly contrasting throughout their history with their northern neighbours, the pastoral nomads of the steppes. In all probability the Chinese developed their agricultural civilization still further on the loess³ plateau of North-west China, and then penetrated Central China down the valley of the Wei-ho.⁴ The loess country, free from both forest and marsh and favourable to agriculture and to wheeled vehicles, made early settlement and

¹ In 1928 a number of new provinces (Jeho (Jehol), Chahar, Suiyuan, etc.) were formed from sections of the outlying dependencies. In 1935 the three northern provinces of Shansi, Hopeh, Shantung,⁴ with the provinces of Suiyuan and Chahar of Inner Mongolia, proposed to form an autonomous State.

² Estimated by the Chinese Ministry of the Interior in 1932. The figure includes the outlying territories.

³ The word loess is from a German word meaning 'loose.'

⁴ Wei-ho means 'Clear River'—a contrast with the muddy Hwang-ho.

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continuous diffusion of culture possible. During the earliest period, from about 2300 B.C. to A.D. 214, a Chinese State was established on the Northern Plain. At first there was a feudal society, in which a class of military nobles organized defence and kept the peace. At one period there were seven kingdoms, but by 255 B.C. the kingdom of Ch'in, centred on the Wei-ho valley, had conquered all the others, and its prince called himself Shih Hwang Ti ('the First Emperor'). This first Chinese Empire joined together the Hwang-ho basin and the Yang-tse valley. The Emperor crushed the troublesome nomadic tribes, and then, by joining together the various existing walls, he constructed the Great Wall, about 1400 miles long, to resist future attacks by the steppe-land peoples. Under the rule of the Han Dynasty (206 B.C. to A.D. 214) the empire enjoyed a period of great prosperity, with wonderful progress in learning, agriculture, and colonization. Large-scale irrigation systems were constructed, marshes were drained, agricultural methods were improved, and there was considerable State-aided colonization of thinly peopled areas. Aboriginal peoples were thus absorbed, and the empire continued to expand, until Chinese influence extended across Central Asia even to the Caspian Sea. South-east China was conquered, and became as much Chinese in culture as the original empire, and Chinese settlers steadily penetrated into South China along the valleys of the Yang-tse tributaries. Last of all the Chinese have penetrated the tangled hill country of the south-west (chiefly Yunnan), slowly pushing the aboriginal tribes into the remoter hills. Yet even here the tribes are being absorbed by the Chinese, just as they have absorbed other peoples in the rest of China. The steady expansion of the Chinese has arisen from two great causes—pressure due to overpopulation of the Northern Plain and Yang-tse valley and to barbarian invasions from the north. The south, owing to warmer climatic conditions, can produce more food than the

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north, and this gave an added incentive to southward expansion.

Following the Han Dynasty, various other dynasties ruled in China, although there were two periods of serious Tartar invasions from the steppe-lands. In 1214 North China was conquered by Ghengis Khan, the great Mongol leader, and his successor, Kublai Khan, subdued the south, thus founding, in 1280, a Mongol dynasty which lasted until 1368. Marco Polo, the Venetian, made his famous journey to the Court of Kublai Khan at Peking, and resided there for seventeen years (1275-92). The Ming Dynasty, which followed the overthrow of the Mongols, persisted until A.D. 1644, when the Manchus from the northern grasslands conquered China and set up a Manchu dynasty, which endured until 1912, when the Chinese Republic was founded, following the revolution of 1911. The two great republican leaders were Sun Yat Sen and Yuan Shih-k'ai. The latter became President of the Republic, but on his death in 1916 China fell into a state of chaos, with the people in many areas a prey to rival war-lords and bandit leaders. The last Manchu Emperor, P'u-yi, abdicated in 1912, and on March 1, 1934, he became Emperor of Manchukuo.¹ The present Government, which has restored some measure of order in China, has Nanking as its capital. It is mainly representative of the Kuomintang, or Nationalist party, and governs in accordance with a declaration of October 4, 1928. There is a President and five Yuan, or Councils.

The Chinese language is monosyllabic and of very simple construction, practically devoid of grammatical rules. But pronunciation differs rather widely, the dialects of the south and south-east being unintelligible to Chinese from the north or centre. The chief spoken language is Mandarin, which prevails over North and Central China, and is the official language of the country.

¹ See p. 362.

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The southern boundary of the Mandarin tongue closely follows one of the great natural barriers in China—the high and forested water-parting between the southern tributaries of the Yang-tse and the streams flowing independently into the South China Sea or into the Si-kiang. The mountainous coastal provinces lying south of this barrier have retained their distinctive dialects, Fukien in particular having extraordinary diversities. In Yunnan there are many tribal languages in the hills, but Mandarin is important round Yunnan City. Despite variations in the spoken word, however, the written language of the Chinese is the same everywhere, although its great difficulty restricts its use to the learned few.¹ Each word is represented by a special character, derived originally from simple pictures drawn to indicate an object or an idea. Although pronunciation and styles of writing have changed, written Chinese is the same now as it was three thousand years ago.

In China the most important unit is not the individual, but the family.

Above the family is the village; the villages are joined together into a town² or rural district (*hsien*). . . . These *hsiens* are united in a province. The magistrates of whatever degree were always considered to be the 'father and mother' of their people—that is, the head of a patriarchal family. The Emperor was personally responsible to heaven for the misdeeds or misfortunes of China, in the same way that a Chinese father was responsible for his family.³

In China the State concerned itself with certain definite tasks, such as large-scale irrigation and transport, but the village tended to retain its independence, and the State, as such, troubled the peasant very little indeed. In the

¹ There is now a movement for the simplification of written Chinese—adopting 1000 common characters—which is being taught with great success in North China.

² The town is usually surrounded by a wall for protection.

³ L. H. Dudley Buxton and W. G. Kendrew, *China* (Oxford University Press).

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past even a change of dynasty in the emperors has scarcely affected the great mass of the people.

China has three great religions—Confucianism and Taoism, both of which originated in China, and Buddhism, introduced from India. Confucianism is founded upon the teachings of the great philosopher Confucius (551–479 B.C.), and presents a system of life based upon very lofty ideals of humanity, justice, obedience, honesty, and good faith, without, however, any teaching regarding an after-life or a way of communion between man and God. Confucianism has been for over two thousand years the religion of the intellectual Chinese, and has been of great moral value to the nation. Until the 1911 revolution it was the State religion.

Taoism was originally a religion founded by certain philosophers, of whom the chief was Lao-tze, in the early sixth century B.C., but as time went on Taoism adopted many of the beliefs and ceremonials of Buddhism and Confucianism. Buddhism reached China from Tibet in the seventh century. Buddhism has numerous adherents, but many Chinese, excluding Mohammedans and Christians, profess and practise all three religions—Buddhism, Confucianism, and Taoism. Ancestor-worship, a feature of many primitive religions, was fully commended by Confucius, and it is regarded as the duty of every man to have sons who may worship at the ancestral shrine.

Moslems are found in every province of China, but are most numerous in Sinkiang, Kansu, Shensi, Shansi, Yunnan, and Hopeh¹ (or Chihli²). Probably they number at least 20,000,000. One of their most striking contrasts with the other Chinese is their refusal to eat pig, the most important food animal of China. Christians number over 3,000,000, of whom more than two-thirds are Roman Catholics.

The most remarkable fact about Chinese culture is its

¹ Ho-peh = 'North of the River'—i.e., the Hwang-ho.

² Chih-li, the old name of the province, means 'Direct Rule.'

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uniformity throughout a land that forms a sub-continent rather than a single country. Besides relative uniformity of race, language, and religion, there is uniformity of social organization, based upon an agriculture of small holdings in the plains and alluvial valleys. There are practically no distinct classes in China, and "as education was cheap in China and there were no expensive schools or universities, in practice anyone whose parents could afford to lose the value of his labour while he was studying could aspire to the highest positions in the land."¹

Chinese civilization is very different from that of Europe. China for centuries has been severed from Europe by an immense stretch of land which includes as the immediate margins of China lofty and thinly peopled mountain and plateau barriers. From very early times the trade routes across Asia to Europe and the Mediterranean region have been used, except for the occasional interruptions of war and pestilence, and it is fairly certain that Chinese culture owes something to Mesopotamia and other parts of Western Asia. But contacts have been too weak to influence in any important way the civilizations developing among the densely peopled lands at either end of the trade routes. Apart from the differences in culture already indicated, perhaps the most important contrast is due to the fact that China has remained a land of agriculturists, while Europe within the past 150 years has been profoundly changed by the rise of the great manufacturing industries, based upon a series of wonderful inventions. The Chinese, too, can claim many inventions of profound importance to mankind. Early in their history they developed an elaborate system of irrigation, with canals and aqueducts. They cultivated silkworms and practised silk-weaving at a remote period, and the glazed pottery of their best periods is unsurpassed. The Chinese practised the art of printing at least eight centuries before it was developed in Europe; they invented

¹ Buxton and Kendrew, *op. cit.*

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the primitive form of the mariner's compass; and they used gunpowder long before it was introduced into Europe.

The relations of China with the outside world have not always been of a happy nature. Early travellers, like Marco Polo, were welcomed with kindly hospitality, but subsequent contact with European traders made the Chinese suspicious and hostile. The Portuguese reached Canton, and about 1557 were allowed to settle in Macao, an island near the mouth of the Si-kiang. In time other nations sought to develop trade with China, but at the beginning of the nineteenth century Canton was the only port open to European trade. The difficulties under which Europeans carried on trade, in which opium was the chief commodity, led to the Opium War (1840-42) with Britain, and by the Treaty of Nanking (1842) Hong Kong was ceded to Britain, and the ports of Canton, Amoy, Foochow, Ning-po, and Shanghai were opened to foreign residence and trade. Since then the European Powers, Japan, and the United States, attracted by the enormous wealth of China in minerals and other resources, have forced China to open over fifty treaty ports, while China herself has voluntarily opened several others. In recent years some of the foreign concessions, notably those of the United States, have been restored to China. At different times China has lost control of certain territories. In 1895 Taiwan was ceded to Japan, and Chosen was granted independence, ultimately becoming part of the Japanese Empire, in 1910. The conflicting interests of Japan, Russia, and China in Manchukuo will be dealt with in Chapter XIII.

Distribution of Population. The population of China proper is over 440,000,000, so that the average density is over 200 per square mile. But in view of the mountainous nature of a large proportion of the country the density in the best agricultural areas is obviously much greater. For example, the approximate density is 400 per square mile in Kwangtung, 600 in Shantung, and 900 in

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Kiangsu; while in some areas of considerable size the figure may be 3000, or even 4000, per square mile. A good deal of China is very much overpopulated. Large families are the rule, sons being welcomed rather than daughters. Reverence for his ancestors and attachment to his family make the Chinaman reluctant to leave his native district, where he may fulfil his duty of tending the ancestral graves. This largely explains the general failure to migrate to regions such as Manchukuo and the better parts of Mongolia, which could support many more than their present populations. Thousands of Chinese leave their country every year, it is true; and there are about 11,394,000 living abroad, including a total of 1,500,000 in British India and the South Sea Islands. The Chinese is brilliantly successful as shopkeeper, trader, and merchant in many parts of the Far East. Nevertheless the amount of emigration from China is relatively very small, especially if one remembers that the majority leave for only short periods, and that those who make a more lengthy stay always hope to return to end their days in the ancestral home. Overpopulation means a low standard of living and the ever-present danger of famine and terrible distress should the harvest fail through drought or flood. The north, with its smaller rainfall, is more liable to famine than the better-watered south.

The following factors would help to remove some of the worst dangers of overpopulation—a lower birth-rate and a strong Government to undertake large-scale works, such as flood-prevention, irrigation, water-storage, afforestation, extensive railway and road construction, the development of textile industries, and the expansion of foreign trade. Inadequate means of transport make it extraordinarily difficult to overcome the disastrous results of famine by bringing food from other regions. Improved communications would probably encourage more extensive migration into neighbouring districts that are capable of supporting more people.

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The Chinese, then, are a nation of farmers; honest, industrious, skilful, peaceable, and conservative. It is a great tragedy that in recent years peaceful development has been interrupted by civil wars, banditry, and Japanese

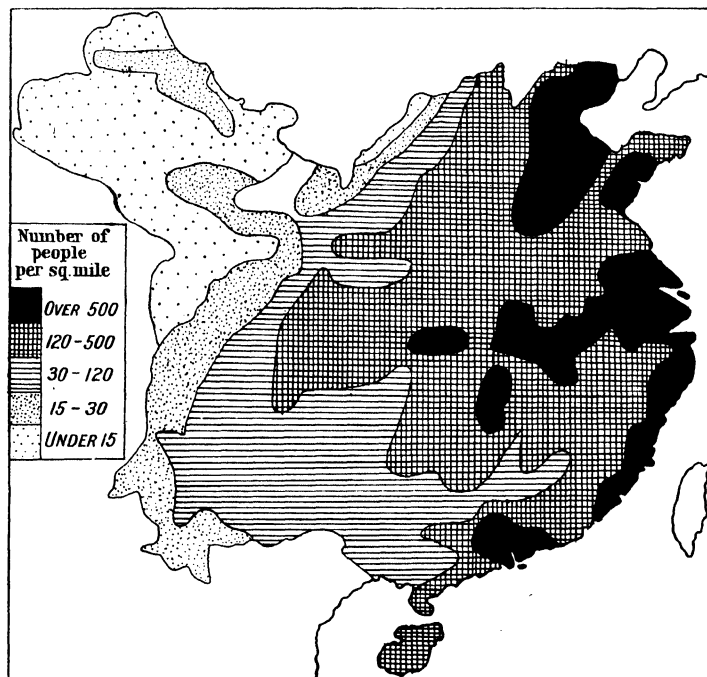


FIG. 77. DENSITY OF POPULATION OF CHINA

interference. China has a cultural unity that certainly does not exist among the nations of Europe, and with the slow but steady development of the national spirit that is now apparent China may in time become a political unity, probably as a federation of more or less self-governing provinces. Britain and the other great nations should endeavour to help China with enlightened sympathy and

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understanding, for China can play a great part in the future progress of mankind.

Structure and Relief. China proper consists of three great river basins—that of the Hwang-ho (with the Pei-ho), in North China, that of the Yang-tse-kiang, in Central China, and that of the Si-kiang, in South China. These river basins are separated and flanked by lofty plateaux and mountain-ranges—the Mongolian plateau, the loess plateau, and the Shantung Mountains in the north, the Tsin-ling and Hwai Mountains in the centre, projecting eastward from the plateau of Tibet, the plateau of Yunnan and the South China highlands in the south.

The ancient massif of Shantung¹ is continued to the north-east by the peninsulas of Liaotung² and Chosen. Coal measures are found on the western flanks of these highlands. The border of the Mongolian plateau lying in North-west China consists of parallel folded ranges, running from north-east to south-west and including very extensive coalfields. The greater part of this region is covered to a great depth with loess deposits. The highlands of South China are parts of an old block, with ranges and valleys running roughly parallel with the curving coast. Here, again, there are numerous coalfields. Great lake basins once existed in Central China, and in that of Szechwan were deposited extensive coal measures and red sandstones—whence the name Red Basin of Szechwan. There are also important coalfields in Yunnan.

Mineral Wealth. It is clear that most of the Chinese provinces contain coalfields, but their total coal resources are now believed to be comparable only to those of Germany or Great Britain,³ and very much less than those of the United States, although far greater than those of

¹ *Shan* = 'mountains'; *tung* = 'eastern.'

² *Liao* = 'the Iron City.'

³ The work of the Chinese Geological Survey in recent years has shown that the coal resources of China are nothing like so great as was once supposed.

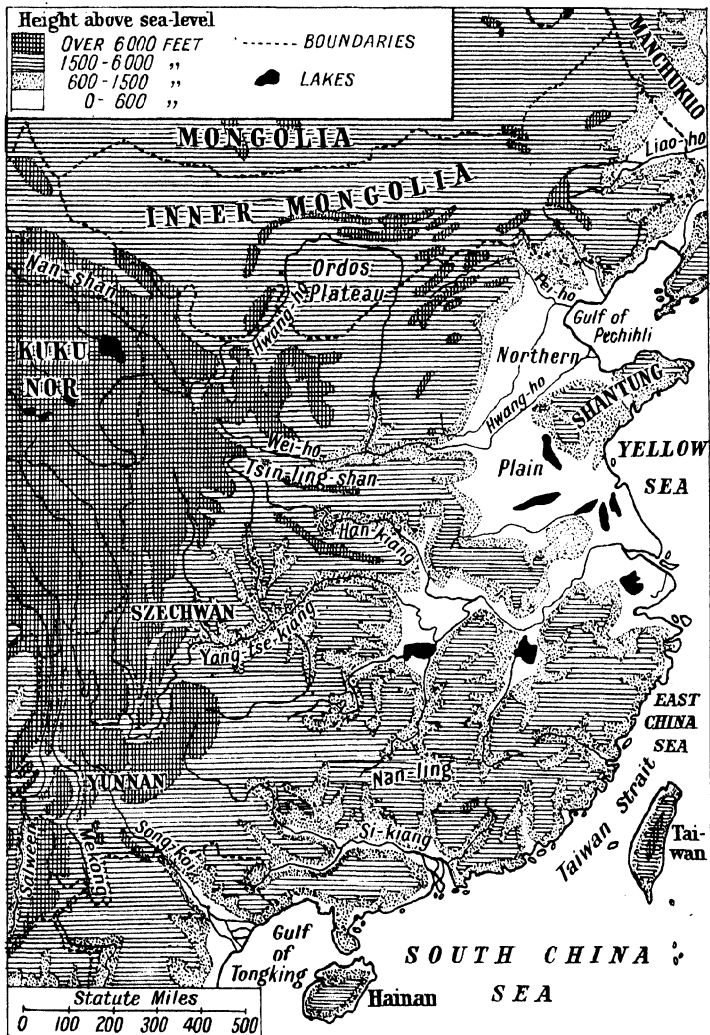


FIG. 78. RELIEF AND RIVERS OF CHINA

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any other country in the Far East. The average annual output of Chinese mines is about 30,000,000 tons—roughly one-tenth the production of Great Britain—and less than half is from modern mines. The most important Chinese

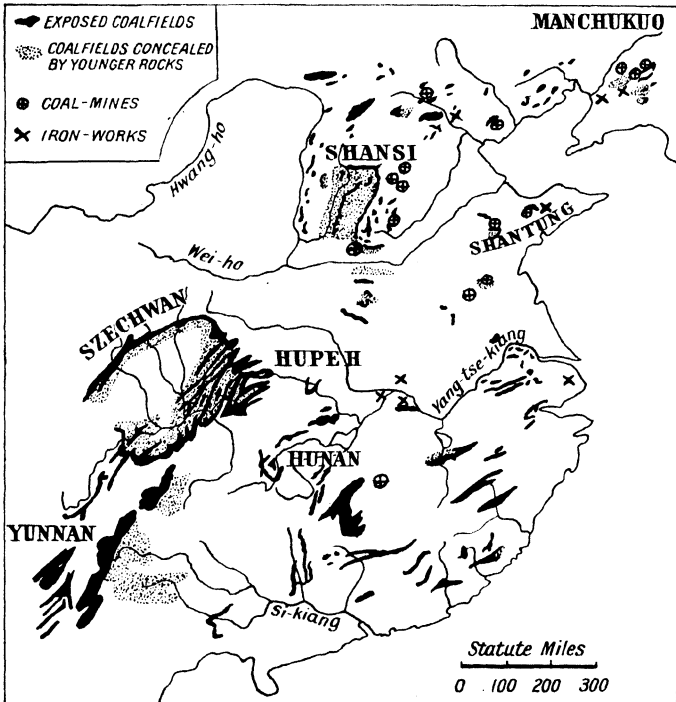


FIG. 79. COALFIELDS AND IRON-WORKS OF CHINA

coalfields are those of Shansi and Shensi, which include a valuable anthracite-field; but on the whole the coalfields are not well placed for industrial developments.

China's resources in petroleum seem to be rather insignificant; and it is uncertain whether hydro-electric power can become important, except for limited local needs.

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Iron ore is fairly abundant in the anthracite coalfield of Shansi, where the iron industry is the oldest in the world; in Hopeh and Shantung; and in the middle Yang-tse, at Tayeh, near Hankow. It seems certain, however, that China lacks the great iron resources necessary for the development of large-scale iron and steel industries.

Other minerals of some importance are tin, worked for centuries in Yunnan, and forming the most important mineral export of China, shipped from Hong Kong; antimony, mostly from Hunan, China producing over 60 per cent. of the world's output; copper, obtained in Kansu, Yunnan, and Szechwan; kaolin, or china-clay, which supports pottery industries in Fukien, Kiangsi, and Kwangtung; wolfram, molybdenum, bismuth, gold, silver, zinc, and lead. Salt is obtained from sea-water or from salt springs in Szechwan and Yunnan.

Climate. As China covers such a huge area, extends through 2500 miles from north to south,¹ and varies so widely in relief there is naturally great diversity of climate, although conditions are everywhere dominated by the monsoons.

The severe cold of the interior of the continent during the winter results in contracting air, with the production of the world's most intense high-pressure system, centred over the Tarim basin and Mongolia. From this region strong, cold winds blow out towards the Pacific, and, deflected to the right by the earth's rotation, come mainly from the north-west in Northern China, from the north in Central China, and from the north-east in Southern China. These winds come from desert plateaux, and so are very dry; but they generally carry dust or sand, to such a degree in North China as to impede navigation in the Gulf of Pechihli and the Yellow Sea, as though by a fog. The winds are so intensely cold that the whole of China is colder, making allowance for altitude, than

¹ This amounts to two-fifths of the distance between equator and Pole.

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any corresponding latitudes on the globe. Northern China is particularly cold, and frost and snow are not unknown even in the Canton district. The winter winds are so strong that gales and stormy seas are common, especially in Taiwan Strait. Winter is obviously a dry season, especially in the north. Shallow cyclones occasionally bring light snows to the north, but the highlands of South China and North-east Taiwan have a considerable winter rainfall.

As the sun comes northward, crossing the equator at noon on March 21, the deserts become warmer; the winter winds die away in April, and give place in May to weak monsoon winds blowing in from the Pacific Ocean. These winds come from the south-east and persist until September. They are warm and moisture-laden, so that cloudy skies and heavy rains are frequent. In China as a whole half the annual rainfall comes in June, July, and August, and about 80 per cent. in all falls during the six summer months. In South China there is a considerable area with a mean annual rainfall exceeding 60 inches; but the rainfall diminishes to the north and north-west, amounting to less than 10 inches in the interior deserts. The July isotherm of 80° F. includes almost the whole of China, although it must not be forgotten that altitude reduces the temperature over much of the land. The range of temperature exceeds 80° F. in the north, and is 25° F. (a high figure for the latitude) in the extreme south.

Mean rainfall figures often fail to reveal facts of great importance. A striking feature of the rainfall of China is the occurrence in summer of incredibly heavy down-pours, such as 23 inches in thirty-three hours in South-west Hopeh in 1924 and 1.8 inches in less than a quarter of an hour at Shanghai on July 5, 1906. Such torrential rains wash down the soil from the treeless mountain-slopes and destroy the terraced fields. The Chinese have deforested vast areas. Had the forests remained their deep soils

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would store the rainfall, instead of letting it carry away the soils and produce devastating floods in the valleys.

Besides the menace of floods, the Chinese have to face the scourge of drought—a serious danger in densely peopled regions wholly dependent on agriculture. Famine causes great loss of life and intense distress most frequently in North and Central China, particularly in provinces far inland. Inadequate storage of water, deforestation, and overpopulation continue to intensify the famine horrors of the drought periods.

Much of the late summer rainfall of South China is due to typhoons. A typhoon is an extremely violent cyclonic storm, in which terrific winds whirl round a centre of very low pressure. Typhoons originate on the ocean to the east of the Philippines, and usually travel west at about twelve miles an hour, and then curve north-east along the coasts of China and Japan. A few penetrate inland and die away.

The destructive effect of a typhoon is extraordinary. In 1922 one passed close to Swatow.¹ A wall of water about twenty feet high was forced on to the shore of the harbour, carrying everything before it. Near Amoy a steamer of 4000 tons disappeared, leaving hardly a trace behind. Another steamer was lifted bodily on to an island at the entrance to Amoy Harbour. All along the coast the sea carried a ghastly freight of dead bodies, for many of the people spend their lives in boats along the coast. It was estimated that no less than 80,000 persons were drowned.²

Natural Vegetation. The climate of most of China is suited to forest-growth. The subtropical monsoon rain forests of Central and South China include the camphor-tree, magnolia, bamboo, tallow-tree (the fruit of which furnishes tallow for some candles), the varnish-tree, which is tapped for varnish or lacquer, and numerous palms.

¹ On the South China coast, just within the tropics.

² Buxton and Kendrew, *op. cit.* Joseph Conrad's *Typhoon* is the classic story of these storms

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Bamboos are of great value as building materials and for making drinking- and cooking-vessels, furniture, pipes, and musical instruments, while the young shoots are eaten as a vegetable. The north is suited to temperate forests of evergreen hardwoods and to deciduous trees (such as oak, chestnut, ash, elm, maple, beech, poplar, birch, and walnut), with conifers—pine, fir, spruce, larch, hemlock—on the drier areas to the north-west and on mountain-slopes elsewhere. The drier plateaux of the north and north-west are naturally steppes, semi-desert, or even desert.

There are still extensive forests in the mountainous regions of South China, extending from Szechwan and Yunnan, on the west, to Chekiang and Fukien, on the east. But on the Northern Plain and the basins of the Yang-tse the forests have long ago been almost completely destroyed to provide fuel. Roots of grain crops, corn-cobs, weeds, peanut-shells—in fact, any things that will burn—are carefully collected, dried, and used as fuel.

Agriculture. About 80 per cent. of the Chinese are engaged in agriculture. Extensive mountainous regions make agriculture impossible over about half of China proper; poor soils, slopes denuded of soils, and the many cemeteries (often occupying the best land, because of the veneration of the Chinese for the dead) further reduce the land available for farming. The Chinese system of agriculture must be wonderfully efficient to support such dense populations. Their soils have been bearing heavy crops for forty centuries without the use of imported fertilizers. The Chinese long ago solved the problem of maintaining soil fertility by rotation of crops, making use of leguminous plants (peas, beans, etc.), which increase the supply of nitrogen in the soil, and by utilizing every possible type of manure. All animal and human manure is preserved with equal care, and shallow pits are dug out at roadsides for the special convenience of passing camels, donkeys, or other animals, and for the benefit of the

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neighbouring farmers. When the 'sun-dried bricks of the chimneys begin to crack they are pulled out and pounded up for the sake of their fertilizing soot and potash. Ashes from fires, and even the scrapings of the house floors, are used as manures. The common practice of using the flood-waters for irrigating the flat lands, especially in Central and South China, adds new layers of fertile silt, and even the uncontrollable floods that mean disaster bring some compensation in their mud deposits. Hill-slopes are ingeniously terraced from top to bottom to prevent soil-erosion and to preserve both water and silt. Sometimes the terraces are covered with soil laboriously carried from elsewhere in baskets. Fields are watered by opening the dikes if the streams are above the general level. Ordinary wells with a rope and windlass are in common use, and water from streams is raised in baskets swung from hand to hand. Another common method is that of the Persian water-wheel, in which an ox turns a large wooden cogwheel and raises water in pots fixed on an endless chain. There are other ingenious water-wheels, worked by feet or by hands, one such machine having a great advantage in that it can be moved from one field to another.

Chinese farming methods may seem primitive, but they fulfil their purpose admirably. Nearly everything is done by hand-labour. The wooden plough merely breaks the thin surface soil; the European plough would make deep furrows, and so assist in soil-erosion. By the liberal use of manure and an ingenious system of intercropping the Chinese farmer makes his little fields yield several harvests annually. Wheat may be sown in autumn in rows some twenty-eight inches apart; then in spring millet is sown between the rows of wheat. The ripened wheat is pulled up (the straw and roots are needed as well as the grain), and soya-bean or some other crop takes its place, to ripen after the millet has been harvested. The fields are constantly tended with the care bestowed upon a European

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garden, the surface soil being kept finely broken to conserve moisture. While rice is growing in a special nursery bed the rest of the land will be used for other crops until the rice is ready for transplanting. The fields may be fashioned into parallel troughs, in which the rice is grown, and ridges, which support peas, beans, or other crops; while the boundaries between fields are not hedges, walls, or fences, but useful lines of mulberries or other fruit-trees. The Chinese cannot afford to waste anything that may serve some useful purpose.

The typical peasant home is usually a low building of three or four rooms round a mud courtyard. Beds in North China are usually laid on top of brick flues, warmed by heat from the fire used for cooking. Charcoal braziers may be used for heating purposes.

The three great food crops of China are rice, covering more than a quarter of the land under crops, and wheat and millets, each occupying less than one-quarter. Rice is the great staple crop of South and South-east China; wheat and millets are very important in the north, the millets generally in the drier areas; rice and wheat are both very important in the Yang-tse basin. Despite the huge rice production additional supplies have to be imported from Indo-China. The provinces of Hunan, Kiangsi, and Anhwei normally have a surplus available for export to other provinces. Rice-straw is made into hats, mats, basins, and other articles, and wheat-straw is plaited for export to American and European hat factories.

Soya-beans,¹ which are rich in oil and very nutritious, form an important food-supply for men and animals, particularly in North China. The oil can be used for cooking and in making lubricating oil, margarine, soap, and candles. The waste pulp from which oil has been crushed is a valuable bean-cake for feeding cattle and pigs.

Cotton is grown in large quantities in the Yang-tse

¹ See p. 358.

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valley and the Northern Plain. It is usually sown in May, and picked at the end of August, after the wheat has been

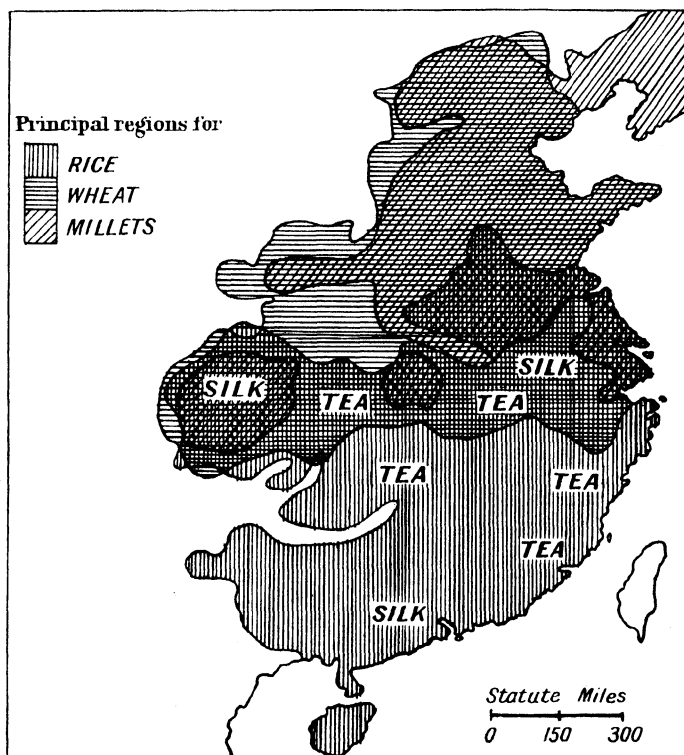


FIG. 80. DISTRIBUTION OF IMPORTANT AGRICULTURAL PRODUCTS IN CHINA

This map gives some indication of the great importance of the Northern Plain, the Yang-tse valley, and the Szechwan basin.

harvested. The common clothing, usually dyed with indigo, is made of cotton and padded with cotton-wool for warmth in winter.

The cultivation of mulberries for silkworms is an ancient

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industry, and Chinese silk production (about 25 per cent. of the world's supply) is exceeded only by that of Japan. There is a great deal of domestic silk manufacture, while there are modern mills in many large towns, such as Shanghai, Hankow, Tientsin, and Canton. Silk is the clothing material of the wealthy, but peasants often have silk for holiday wear.

The chief tea areas of China are the Yang-tse valley, especially its southern slopes, and the slopes of the Si-kiang valley. There is a large home consumption of tea, but exports have greatly declined in face of competition from India and Ceylon. Hankow is the great tea centre for the Yang-tse basin, and Foochow, in Fukien, has a large export trade. The chief markets for China tea are the U.S.S.R., North Africa, Hong Kong, the United States, and Great Britain. Tea was first used in China to flavour boiled water when it had been discovered that unboiled water was often contaminated and caused disease.

Other crops of some importance are ground-nuts, maize, sesame, peas, rhubarb, and tobacco in the Hwang-ho basin; pepper, hemp, rape-seed, ginger, and ramie fibre, or China grass (which supplies a fibre for ropes, cordage, and cloth), in the Yang-tse basin; sugar-cane, cinnamon, aniseed, ginger, ramie, indigo, and camphor in South China.

Animals. Pigs are the chief animal food in all parts of China, since they will thrive on all kinds of refuse that would otherwise be wasted. They are not kept in sties, but are free to wander in search of food: they are the scavengers of the village. There are 94,344,000 pigs, chiefly in the regions of dense population. Pigs' bristles are a valuable by-product, of which about two-thirds of the production are exported. Oxen and water-buffaloes are used in Central and South China for ploughing the paddy-fields and as draught animals: beef and dairy produce are of little importance. Donkeys, mules, and horses are employed as pack-animals in the north. The

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many sheep of the drier parts of the north and west are mainly important for their coarse wool, while the camels of Mongolia each yield about 6½ lb. of fine, soft hair annually. Nearly every farmer has a number of fowls, ducks, and geese,¹ and the export of eggs and egg products (mainly liquid eggs) is important. Meat is generally a luxury food, only to be eaten on special occasions; but fish, caught by line, net, or cormorant, is a common article of diet. Edible birds'-nests, *bêche-de-mer*, and sharks' fins are special dainties.

Manufactures. The craftsmen and traders of China are still largely controlled by their ancient guild system. The Chinese are extraordinarily skilful, artistic, and patient in their workmanship, and, as in the case of the Indians, their genius does not lie in the direction of modern mass-production methods on the factory system. But under the powerful influences of Europe, America, and Japan

China is in the early stages of a vast industrial upheaval. Its ultimate consequences are extremely hard to predict, but they can hardly be less momentous for the world than for China itself. The new influences are at present very restricted. There are now two Chinas—the China of the great interior, where life still pursues its immemorial round, comparatively little affected as yet by modern influences, and the China of the open river and seaports and their immediate hinterlands, studded with mills, factories, and warehouses of Western type and seething with difficult social problems of a type that Confucius and the ancient sages never dreamed of. Of this new industrial China Shanghai is the embodiment.²

Labour in China is so abundant and cheap that many of the worst evils of the factory system have developed; but fortunately many Chinese, including industrialists

¹ Estimates in 1933: 22,247,000 cattle, 19,418,000 goats and sheep, 6,089,000 horses, 7,889,000 donkeys and mules, 338,672,000 chickens, 70,122,000 ducks and geese.

² Professor P. M. Roxby, in a broadcast talk on China (1932).

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and mill-owners, have recognized the dangers involved, and the Chinese Government has introduced a Factory Law to regulate conditions of employment in the interests of the workers.

The manufacture of cotton has made great headway in recent years, and there are now over 130 cotton-mills, half of them in or near Shanghai: 89 mills are Chinese-owned, 41 Japanese-owned, and 3 British-owned. There are also cotton-mills in Hankow, Wuchang, Tsingtao, Wusih, Tientsin, and Canton. China already satisfies most of her requirements in cotton yarn, and will certainly increase her share in the manufacture of the coarser cloths for the home market. Wool- and silk-mills are also important at Shanghai, Canton, and elsewhere, while native looms are found in most dwellings.

Flour-milling is another great modern development, especially at Shanghai, and rice-mills are increasing in importance.

The large Chinese iron-works of Hanyang, near Hankow, are supplied with ore from the mines at Tayeh, sixty miles away.

Communications. In all parts of China there are numerous roads, carrying a vast amount of internal trade; but very few have a good surface. Many are deeply rutted tracks, a morass of mud in wet weather, thick with fine dust in dry weather, and fitted for little better than the simple Chinese wheelbarrow. Roads that were formerly paved are not kept in good condition. The sturdy wheelbarrow is widely used for carrying goods or passengers, and it has the great advantages of being able to use narrow pathways and avoid the ruts. Wealthy people may ride in a kind of sedan-chair, carried on two bamboo poles which rest on the shoulders of the two carriers. Human beings, rather than animals, are the carriers in China, and perhaps the commonest form of land transport is that of a long pole weighted with goods at either end and balanced on the shoulder of one man. There are

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now over 35,000 miles of motor-roads available, but vast areas are still without good roads of any kind.

Nevertheless, even in some remote interior districts fairly efficient and regular motor-bus services are coming into operation. The American engine and chassis are converted into an omnibus by the addition of coach-work of local construction, designed for economy rather than comfort.

There has long been a considerable volume of traffic by animal caravans along certain routes:

- (1) Peiping to Kashgar, in Sinkiang, *via* Taiyuen, Sian-fu, Lanchow, and the Gobi Desert.
- (2) Peiping to Kiakhta, south of Lake Baikal, *via* Kalgan and Ulan Bator Hoto. When the railway from Kalgan is completed along this route it will bring Peiping within ten days of London by the Trans-Siberian Railway.
- (3) Peiping to Lhasa, *via* Lanchow and Koko.
- (4) Hankow to Sinkiang, *via* Sian-fu and Lanchow.

Rivers and canals undoubtedly form the most important means of inland communications in China. Thousands of junks, as the small native craft are called, are employed on the inland waterways, frequently forming the only home and possessions of a Chinese family, and many are daringly and skilfully navigated in the stormy China seas. The Yang-tse is the great artery of Central China. Ocean-going vessels up to thirty feet draught can reach Hankow, 650 miles from the sea; river-steamers up to fifteen feet draught can reach Ichang, 1000 miles from Shanghai; steam-launches and junks can penetrate another 200 miles to Suifu, in Szechwan. The lower parts of the Si-kiang and of the larger Yang-tse tributaries are navigable for small steamers. There are thousands of miles of canals and other waterways on which small craft are, if possible, driven by winds and currents, but otherwise have to be poled along or laboriously towed. Canals are best

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developed in the south, but the most famous of all is the ancient Grand (or Imperial) Canal, running from the Yang-tse delta to Tientsin. The northern section was constructed by Kublai Khan, but the rest is centuries older. The canal was long used for bringing rice to North China, thus avoiding the stormy China seas.

The first railway in China was opened at Wusung, near Shanghai, in 1876. To-day in China proper there are over 6600 miles of railways, of which about 1300 miles have been constructed by British enterprise. All the railways have the standard British gauge of 4 feet 8½ inches, with the exception of the Yunnan Railway, which is metre-gauge and links Yunnan City with Tongking. The principal lines are those linking Peiping and Tientsin with Fengtien, Suiyuan, Hankow, Pukow (opposite Nanking), and Shanghai; Shanghai with Nanking, Hangchow, and Ning-po; Wuchang with Yochow, in Hunan. The long-projected line between Hankow and Canton is still incomplete.

China has a fairly well-developed telegraph service, linking together all the principal cities and affording communication with all the neighbouring states. There are also telephone and wireless services covering most of the country.

Education. Within the past thirty years there has been a great increase in the number of schools and universities affording a Western type of education. In addition to those under the control of the Central or District Governments, there are numerous Catholic and Protestant mission schools, colleges, and universities. The majority of the Chinese peasants cannot read or write, but serious efforts are being made to educate an ever-increasing number. The Professor of Education of the National University at Peiping informed the author that the aim of Chinese education was to adopt whatever was thought good in Western culture, while retaining the best elements of the ancient Chinese culture.

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Commerce. All the foreign trade of China passes through the treaty ports. Practically the whole of it is sea-borne, the greatest ports being Shanghai, Canton, Tientsin, and those of the south-east coast (Ning-po, Foochow, Amoy, and Swatow). British and Japanese shipping together account for more than one-half of the total tonnage engaged in foreign trade.

Animal products (including hides, skins, and leather) form the most valuable class of exports, closely followed by silk and silk products. Other exports that are worthy of note are textiles, tea, raw cotton, coal, metals and minerals, wood-oil, eggs and egg products. Cotton goods are easily the first item in import trade, others of importance being machinery, metals, and minerals; chemicals, dyes, and pigments; tobacco; wool and woollen goods; fishery products; coal and coke. The bulk of Chinese trade is carried on with British territories (Hong Kong, Great Britain, India, Singapore), the United States, and Japan.

EXERCISES

1. Explain the distribution of population in China, and suggest means by which the density may be reduced in the overcrowded regions.
2. Write a concise account of the communications of China.
3. Construct a map to show the distribution of minerals in China.
4. Briefly contrast the climatic conditions of China with those of India.

CHAPTER XII

THE REGIONAL GEOGRAPHY OF CHINA PROPER

CHINA is so vast and so varied that it might be divided into a great many natural regions; but for our present purpose it will be described under the three great divisions of Northern, Central, and Southern China, corresponding broadly with the basins of the Hwang-ho, Yang-tse-kiang, and Si-kiang respectively. Where necessary these great regions will be subdivided.

NORTHERN CHINA

The Hwang-ho ('Yellow River') rises in Lake Orin, in North-eastern Tibet, and flows swiftly in a great S-shaped curve, with many falls and rapids, to Lanchow, the head of navigation, in the heart of Kansu Province, in which many swift mountain torrents enter the main stream. Lanchow and Tungkwan ('Eastern Gate'), on the eastern border of Shensi, are nearly 400 miles apart in a direct line, but the Hwang-ho takes a great northerly loop of over 1200 miles round the Ordos plateau, a semi-desert section of the Mongolian plateau. This long stretch is navigable only between Chung-wei and Ho-kow, and the upper third of the distance is impeded by rapids and narrow gorges. Just above Tungkwan the Hwang-ho receives its most important tributary, the Wei-ho, which runs through a great corridor in the loess, it and its left-bank tributaries having cut out great canyons and gorges. Below Tungkwan the Hwang-ho enters the Great Plain of North China, one of the most fertile and most densely peopled lands in the world.

The Loess Plateau. The parts of the provinces of Kansu and Shensi lying north of the Tsin-ling Mountains

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and almost the whole of Shansi ¹ consist of a large plateau that has been widely covered to a great depth with loess. True loess is a yellowish-grey deposit of very fine-grained dust, blown across the dry steppe-lands of Asia by the

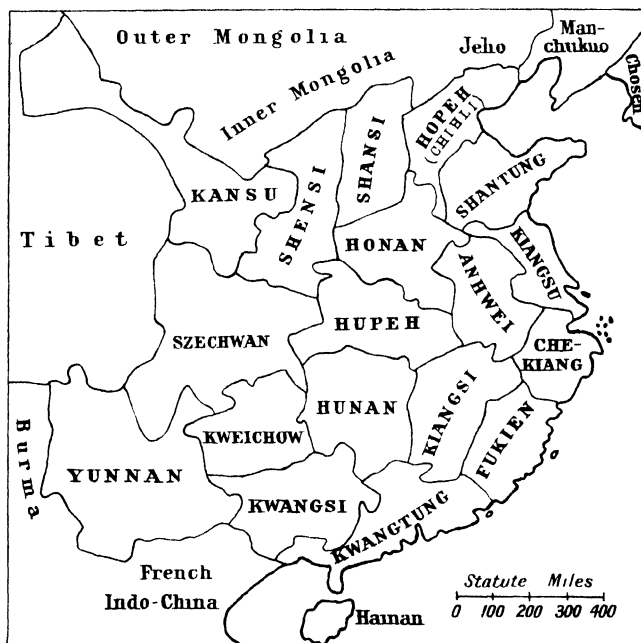


FIG. 81. THE EIGHTEEN PROVINCES OF CHINA PROPER
The provinces are marked in capital letters.

strong west and north-west winds that cross North China in winter. The surface features of the plateau have been largely masked by loess. Some old valleys are filled to a great depth, the lower hills are completely covered, and the loess is banked up on the slopes of the higher ranges that rise above it. The region is thus divided into a large

¹ Shansi = 'West of the Mountains.'

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number of separate valley-basins, each forming a single *hsien*, or county, with its fortified capital in the centre.

The loess forms a loosely compacted loam, full of numerous vertical tubes, probably due to the decay of successive layers of grasses that were slowly buried by continuous deposits of loess. These minute holes form a kind of vertical jointing, with the result that loess forms vertical cliffs, despite its softness. The loess erodes into many remarkable land forms—canyons, crevasses, precipitous cliffs, and natural bridges. The Hwang-ho and other rivers have cut deep gorges clean through the loess, while centuries of traffic along the road-tracks have worn them down into ravines enclosed by walls perhaps a hundred feet high. In these vertical walls of the sunken roads the inhabitants have excavated their dwellings. Originally these would be simple caves, but in modern days they may consist of houses of two or three storeys, fitted with wooden doors, windows, and staircases. The porous nature of the loess makes these homes cool in summer, warm in winter, and free from damp. The rivers, roads, and dwellings are all hidden from the eyes of a traveller on the plateau surface, and the flat cultivated land, devoid of houses and fences, has a deserted aspect.

The loess is remarkably fertile, for its soluble plant foods have not been washed out, and its physical nature makes it easy to till, besides giving it the capacity to absorb and retain great quantities of water. The deep-cut rivers make irrigation impossible, except in a few broad valleys, so that cultivation is dependent upon rainfall. Crops of millet, barley, wheat, maize, cotton, tobacco, and ground-nuts can be raised in years of good rainfall; but the uncertainty of the rainfall, particularly in Kansu, supports only a light or moderate density of population, and renders the region extremely liable to famine.

The great coalfield of Shansi, with its easily worked seams and rich anthracite-beds, will become important

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with improved communications. At present only two railways connect Shansi with the Great Plain.

The Great Wall, extending for 1400 miles from the Gulf of Liaotung, stretches unbroken over mountain, valley, and gorge. It is from 25 to 30 feet high, 15 to 30 feet wide, and has turrets at intervals. The Great Wall forms most of the northern boundaries of Kansu, Shensi,

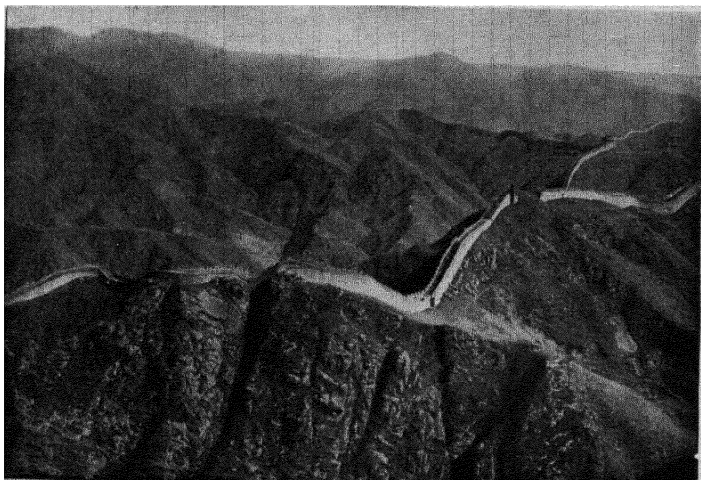


FIG. 82. THE GREAT WALL OF CHINA

Photo E.N.A.

and Shansi, and a southern branch forms part of the eastern boundary of Shansi.

Lanchow, the capital of Kansu, is an important centre on the ancient caravan route, known as the Jade route, which comes from Peiping up the Hwang-ho and Wei-ho valleys, and from Lanchow strikes north-westward through Suchow and Sinkiang to Kokand. The long north-west extension of Kansu Province is really a corridor leading to Sinkiang. Lanchow is the only bridge-point on the Hwang-ho until one reaches the Peiping-Hankow railway

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bridge. The old bridge of boats at Lanchow, over 600 feet long, was replaced by an American steel bridge in 1909. Lanchow is the collecting centre for the tobacco, rice, and fruits grown in its valley and the furs brought from the west. Taiyuen, the capital of Shansi Province, is on the anthracite coalfield, and a branch-line enables the fuel to reach the Peiping-Hankow Railway.

The Wei-ho Valley. This historic route by which the Chinese entered the Great Plain lies between the loess plateau and the Tsin-ling Mountains. The Wei-ho valley is covered with loess, and is a region of great fertility and dense population. Sian, a little south of the Wei-ho, is one of the most ancient towns in China, and for over four hundred years it was the capital of the Chinese Empire. Its old name of Siking means 'Western Capital,' just as Peking and Nanking mean 'Northern Capital' and 'Southern Capital' respectively. The earliest record of Christianity in China—the Nestorian tablet—was found in Sian, and the city is also the home of Mohammedanism in China. Sian stands at the limit of navigation on the Wei-ho, commanding the ancient road to the west, and is one of the most important cities in China.

The Great Plain of North China. The Great Plain is the delta region of the Hwang-ho; it includes the greater part of the province of Hopeh, the east of Honan, and the west of Shantung, while on the south it merges into the region of the Yang-tse delta. The Great Plain is a vast level expanse covered with loess and alluvium deposited by the frequent floods of the Hwang-ho. Huge quantities of silt brought down by the river, especially during the wet summer, are deposited on the river-bed and, by flooding, on the land inundated on either side of the river. Instead of attempting to dredge the river-bed, the Chinese have constructed embankments or levees of mud and straw, sometimes faced with stone, in order to hold the river within its channel. Unfortunately

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such levees merely aggravate the trouble and danger by increasing the deposition of sediment in the river-bed,

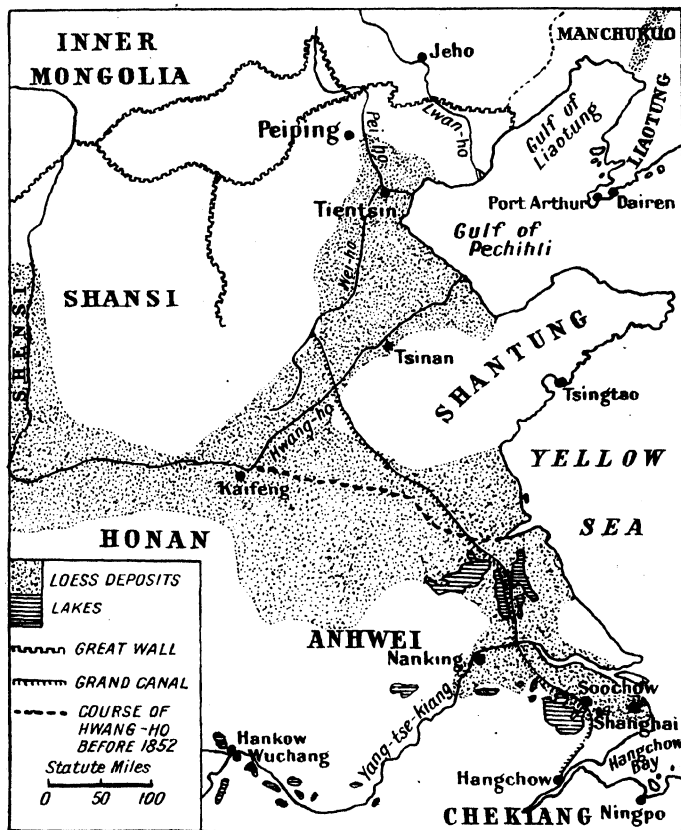


FIG. 83. LOESS DEPOSITS OF CHINA

which is now well above the level of the plain. When the levees break, as they frequently do in flood-time, tremendous volumes of water pour out rapidly over a huge area.

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When the rivers of the plain burst their dikes the whole flat expanse of green crops entirely disappears. The landscape is hidden by what appears to be a boundless expanse of waters, from which a few trees or grave-mounds or the mud walls of villages alone project. When the waters subside once more the landscape is a drab, profitless expanse, and those who have escaped the waters are often condemned to die of hunger on the very lands which before the floods were giving promise of heavy crops.¹

Very serious floods occur at least once within forty years, and lesser ones very frequently indeed. The river does not always return to the same channel, and has, indeed, changed its outlet several times from the Gulf of Pechihli to the Yellow Sea and back again. As the result of a great flood in 1852 the river-mouth moved from the south side of the Shantung peninsula to the Gulf of Pechihli, a distance of 300 miles—equivalent to the shifting of the Thames mouth to that of the Tweed. A million Chinese perished in the flood of 1887. It is not surprising that the Hwang-ho is often called 'China's Sorrow.' There are no large towns on its banks below Kaifeng, and there is no port at its mouth. The Hwang-ho is of little use for navigation.

Of other rivers draining the Great Plain the chief are the Lwan-ho and Pei-ho, in Hopeh, and the Hwai-ho, a former tributary of the Hwang-ho, and likewise liable to disastrous floods.

The silt deposited by the floods of the northern rivers is highly fertile, so that, apart from certain marshy areas, the Great Plain supports heavy crops of maize, millet, wheat, ground-nuts, sweet potatoes, and fruits. The flour of wheat and maize is made into pancakes, a kind of macaroni, and doughy pastes. The millet is cooked whole and eaten with pickled vegetables, bean-curd, salads, and sauces. The millet-leaves are made into matting; the stems are used for thatch and walls; the straw is made

¹ Buxton and Kendrew, *op. cit.*

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into hats, baskets, and sometimes into the sails for junks. The stalks and leaves of maize are chopped up for fodder. The empty corn-cobs, the roots of all the grain crops, the peanut-husks, and weeds gathered from grave-mounds and waysides are carefully dried for use as fuel: there is practically no wood, and coal or charcoal is usually beyond the peasants' means. Hard work and cold winters have made the Northern Chinese remarkably sturdy, thrifty, and industrious.

Of the many ancient cities of the Great Plain Peiping¹ and Tientsin are the most important. Peiping (1,298,000), formerly known as Peking, occupies an important site on the dusty plain at the junction of several important routes—north-west through the Kalgan Pass into Mongolia; north-east along the narrow coastal plain of Liao-hsi, backed by steep cliffs, into Manchukuo; south-west to Shansi; south to Hankow, Nanking, and Shanghai; and south-east to Tientsin. These routes are followed by both roads and railways. The Manchu invaders in the seventeenth century naturally made Peking their capital; but following on the overthrow of the Manchu Emperor in 1912 the Chinese in 1928 made Nanking the capital of the republic. The old Tartar or Manchu city is a parallelogram, with sides measuring five and a quarter miles from north to south and four miles from east to west. Within its walls lay the sacred 'Forbidden City,' to which foreigners were first admitted in 1901, after the suppression of the Boxer rising. The Chinese city is built on the south side of the Tartar city.

Tientsin (1,387,000), the port of Peiping, stands on the Pei-ho, and is the chief commercial centre of Northern China, with busy wharves and cotton-mills. It is important as a road and railway centre and the terminus of the Grand Canal. Tientsin exports cotton and other fibres, animal products from Mongolia, and straw-plait. The river is liable to obstruction by ice in winter. To the

¹ Peiping = 'Northern Peace.'

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west of Tientsin lies Paoting, the centrally placed capital of Hopeh Province. Kaifeng, on the Hwang-ho, in



FIG. 84. STREET IN PEIPING

By courtesy of the London Missionary Society

Honan, is another ancient city that has more than once been capital of China.

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The shallow Gulf of Pechihli is being steadily filled in by the Hwang-ho and other rivers of the Northern Plain.

The Shantung Peninsula. The western half of Shantung Province is part of the alluvial plain of the Hwang-ho. The rest of the province is an ancient mountain mass cut into two sections by a north-west to south-east valley. This is followed by the railway from Tsingtao (350,000), on the important harbour of Kiao-chow Bay, in German hands until its capture by the Japanese in 1914, but restored to China in 1922, in accordance with the Washington Pact. Tsingtao exports coal from the Shantung coalfields to Japan and to the Yang-tse delta, and it has an important cotton industry, mainly in Japanese hands. The deforested mountains are bare and unproductive; but the fertile valleys produce wheat, millet, and silkworms, feed thousands of oxen, pigs, and donkeys, and support dense populations. Many of the hardy Shantung natives go as temporary workers in Manchukuo and Shanghai. In 1898 Wei-hai-wei, a small territory and port in a commanding position near the end of the peninsula, was leased to the British, who, like the Germans at Kiao-chow, carried out harbour improvements and the reafforestation of the neighbouring land. Wei-hai-wei was restored to China in 1930. Chefoo (132,000) is an important treaty port, and has long had a silk industry. Tsingchow is another silk town. Tsinan, the provincial capital and chief commercial centre of the western part of Shantung, trades in cotton, bean-oil, and coal, and has corn-mills.

CENTRAL CHINA

Central China consists of the basin of the Yang-tse-kiang ('Blue River'), which is more than 3150 miles long and drains a region over five times as great as the British Isles, inhabited by about 180,000,000 people. Like the Hwang-ho, the Yang-tse rises in Tibet and swiftly drops through

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deep gorges to Yunnan and Szechwan, receiving many long tributaries, especially from the north. Suifu, near the southern border of Szechwan, is the upper limit of junk navigation, and steamers can use the stretch between Chungking and Ichang when the waters are deep enough to enable them to clear the obstructions of the rapids. Before reaching Ichang the river passes through a deep, narrow valley about 120 miles long, with many difficult rapids, the last twelve miles being a narrow gorge with high, precipitous banks. Boats can shoot the rapids going downstream, but large numbers of coolies are required to drag a laden boat upstream. At Ichang the river is only 130 feet above sea-level, so that the rest of its flow is comparatively smooth. The plain of the middle Yang-tse, below Ichang, is a highly productive region, centred upon Hankow, which can be reached by ocean-going steamers, although variations in water-level affect navigation considerably. The annual rise at Hankow is 40 or 50 feet, and dikes are necessary to minimize the risks of floods. The middle and lower courses of the Yang-tse include a series of large lakes which are being slowly filled in with silt from the river. In winter these lakes are partly dry and swampy, but in the wet summer they serve as useful reservoirs for the rising waters, thus diminishing the dangers of disastrous floods, although at times the lakes become part of a huge inland sea. The Yang-tse flows swiftly, and has an average annual discharge into the sea of over a million cubic feet per second; yet it is full of sand-banks, and is very difficult to navigate in winter.

Central China includes six provinces—Szechwan, Hupeh, Hunan, Kiangsi, Anhwei, and Kiangsu. Climatic conditions are more favourable and much less extreme than those of North China. The winters are short, mild, and rather dry; the summers are long, hot, and wet. Under such favourable conditions two food crops a year can be grown.

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Szechwan is a highly productive province, with great possibilities for future development. The western part of the province consists of lofty snow-clad ranges, such as the Liang-shan ('Terrace of the Sun'), which separate it from the plateaux of Tibet and Yunnan. The mountains support a few scattered tribes, who are virtually independent. The greater part of the province consists of the famous 'Red Basin,' so called because of its red sandstones, deposited in a great lake which ultimately drained off eastward through the encircling mountains with the cutting of the Great Gorge between Kweichow and Ichang. Like the New Red Sandstone basin of Cheshire, the Red Basin of Szechwan contains valuable deposits of salt. Many limestone ridges rise above the red sandstones of Szechwan, which have weathered into rich red soils. The many rivers descending from the encircling mountains have cut deep ravines in the soft sandstones, and the resulting scenery is highly picturesque. The name Szechwan means 'Four Streams,' a reference to the four principal rivers—Min, Tung, Fu, and Kialing—which flow south to the Yang-tse. These rivers supply abundant water for irrigation, and the intensive cultivation of the farmers produces heavy crops of rice, sugar, maize, beans, hemp, tobacco, and oranges on the lowlands, with wheat, tea, and mulberries on the slopes, which are carefully terraced to a great height. Silk is one of the leading products. The climate of this sheltered basin is so remarkably mild and rainy that crops are grown in rapid succession (as many as five or six a year) on the same land, with the aid of manures. The inhabitants are mainly Chinese who have migrated from provinces lying east of Szechwan, but the population is now so dense that, despite the remarkable fertility of the region, there is a steady expansion into the surrounding mountains, especially towards Tibet. Coal from outcrops on the sides of the deep valleys provides abundant fuel.

Narrow tracks lead in all directions across the country,

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but the chief highways are the rivers, where boats are navigated despite the many rapids and gorges. It takes about a week for a junk to sail down from Chungking to Ichang, but it usually takes a month for the almost naked trackers to tow the vessel upstream through the precipitous gorges and against the rapids. The Yang-tse gorge and the narrow track high above it that is followed by human porters form the only connecting-link with the Chinese plains: Szechwan is isolated and inaccessible, and for centuries it has been a self-contained region, independent of external commerce.

Cheng-tu (550,000), the capital of Szechwan, stands in the fertile, well-wooded valley of the Min river, at the junction of several routes, notably one to Lhasa, in Tibet. Its medieval wall is still intact. Kiating, farther down the Min, is a famous silk centre. Chungking (497,000), at the junction of the Kialing and Yang-tse, is an important river-port, despite the difficulties of its connexion with Ichang, and is the chief commercial centre of Szechwan.

The Middle Yang-tse Basins. The provinces of Hupeh, Hunan, Kiangsi, and Anhwei include large proportions of highlands, mainly deforested, but in the sections adjoining the Yang-tse consist of low-lying, level basins, probably once the site of three large lakes. Indeed, each basin still contains a number of shallow lakes and is liable to extensive flooding. Three great tributaries of the Yang-tse flow swiftly enough to maintain deep channels through the lakes, and the rivers are all navigable, the Han up to Siang-yang, the Yuan and Kan far into the mountains; but the Yang-tse itself is the great artery of the whole region, forming one of the best natural waterways in the world, despite the drawbacks previously mentioned.

The climate of the middle Yang-tse basins resembles that of Szechwan, although the latter has milder winters. The province of Hupeh ('North of the Lake') produces large quantities of cotton, wheat, barley, and silk, but

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rice is not so important. The Han river, which drains much of Northern Hupeh, is famous in Chinese history. It gave its name to the great Han Dynasty, which ruled during the Chinese days of chivalry, a period of great expansion of Chinese settlement and dominion. The Chinese still call themselves proudly 'the Sons of Han.'

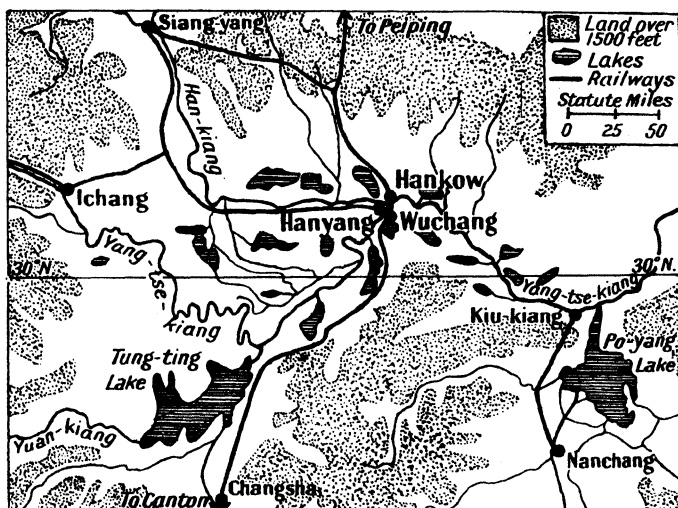


FIG. 85. THE CENTRAL YANG-TSE BASIN

Note the important position of the triple city of Hankow-Hanyang-Wuchang.

At the confluence of the Han and the Yang-tse stand the three cities—Hankow,¹ Hanyang, Wuchang—with a combined population of 778,000. This great triple city stands at the junction of many important natural routes in an extensive region of great production and dense population; its tremendous importance as a collecting and distributing centre is comparable with that of Chicago. Wuchang and Hanyang are both walled cities. Wuchang has silk-mills; Hanyang has large modern blast-furnaces

¹ Hankow = 'Han-mouth.'

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and steel-works, utilizing the coke of Western Kiangsi and the iron ore of Tayeh, in Eastern Hupeh. Hankow has no walls, and is free to expand. It is the commercial centre, with a great trade in tea, silk, tobacco, rice, hides, and other commodities, and will probably become the railway focus of Central China. Tung-oil, obtained from the seeds of a tree growing in the Yang-tse



FIG. 86. CHINESE FARM IN A VILLAGE NEAR HANKOW

By courtesy of Professor P. M. Roxby

provinces, is another product that reaches Hankow. The oil is mainly used in paints for outdoor use and for waterproofing lanterns, umbrellas, etc. Ocean steamers of 10,000 tons reach the wharves of Hankow, bringing petroleum products from the United States, Russia, and the East Indies; also cotton goods and other manufactures from Europe and Japan. The ships take away tea, silk, and other Chinese products.

Changsha, on the Siang-kiang, is the chief city of Hunan ('South of the Lake') Province. It stands on the railway

REGIONAL GEOGRAPHY OF CHINA

to Hankow, just north of a region producing coal and iron. It has smelting-works, and is renowned for its furniture. Hunan is one of the best governed and most progressive of Chinese provinces. It has reasonably good, though unmetalled, roads and excellent motor-bus services.

Nanchang, the capital of Kiangsi Province, commands the valley of the Kan-kiang, which leads south towards Canton, *via* the Meiling Pass. Kiu-kiang, a treaty port on the Yang-tse, is the natural outlet for Kiangsi, which is famous for its tea and porcelain. Anking, the capital of Anhwei Province, is another Yang-tse port.

In the south-east of Kiangsi, and extending into Western Fukien, there is a Chinese Communist State, established on the lines of a Russian Soviet Republic. All land is common property, and all trade is carried on by the central Government of the State, which issues its own coins and notes. In their easily defended mountain country the Chinese Communists have so far defied all attempts of the Nanking Government to subdue them, and at times they have even extended their control over parts of neighbouring provinces.

The Yang-tse Delta. The province of Kiangsu consists of an extensive alluvial coastal plain, containing many lakes, and includes the broad delta of the Yang-tse. The region continues the Great Plain of North China, and loess areas are found even south of the river. Kiangsu is densely populated, and forms one of the few regions in China with good communications. There is an excellent network of canals and waterways, and the whole region has developed industrially more than any other part of China, although coal has to be brought by railway. Rice, silk, and cotton are the staple farm products, and fish are obtained from the waterways. The banks of the canals are lined with mulberry-trees.

Nanking (633,000), the 'Southern Capital' of China, is an ancient walled city, built on the south bank of the

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Yang-tse, where the river is normally four miles wide. To the old Chinese city have been added new Government offices, a sports stadium, and a broadcasting station. Nanking is an important port for tea and silk, and was made the capital of the republic in 1928. It commands 'the Pillars,' which form the lowest gorge of the river and mark its tidal limit. Roads lead out alongside the

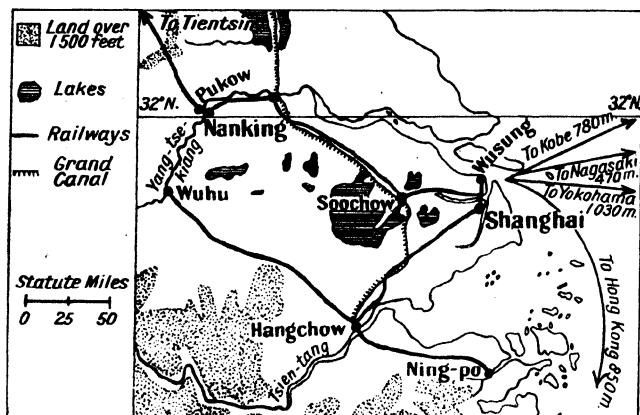


FIG. 87. POSITIONS OF SHANGHAI AND NANKING

river from Nanking, and railways connect the city with Peiping, Shanghai, and Ning-po.

Soochow, lying due west of Shanghai, and Hangchow, in the north of Chekiang Province, are two famous old cities. Hangchow (427,000) is the capital of Chekiang. It has a silk industry, and exports tea, silk, and tobacco.

Shanghai, the greatest port in China, stands on a tributary, the Whangpoo, or Wusung, which enters the southern estuary of the Yang-tse, fourteen miles away. The silting up of the Whangpoo necessitates dredging, and larger vessels dock at Wusung, at the river-mouth. As the outlet for the Yang-tse valley, conveniently placed for both North and South China and supplied

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with good river, road, canal, railway, and sea routes, Shanghai has developed with great rapidity since it became a treaty port in 1843. It is the natural centre for the great entrepôt trade of Central and Northern China, and has exports of tea, silk, cotton, and other commodities. Its chief imports are manufactured goods,



FIG. 88. SOOCHOW CREEK, SHANGHAI

Soochow Creek flows through the rich delta of the Yang-tse, and joins the Whangpoo at Shanghai. It is usually crowded with native boats, and the banks are lined with warehouses, factories, and offices—all evidences of the new industrialism of Shanghai.

By courtesy of Professor P. M. Roxby

timber, wheat, and rice. Great manufactures of cotton and silk depend upon the raw materials of the hinterland, and there is abundant cheap labour. Shipbuilding is another important industry. The old walled native town was of little importance, but the modern Shanghai, with its magnificent buildings and thoroughfares, reflects the enterprise of foreigners, mainly Europeans, although Chinese form the great bulk of the population. In less than a century Shanghai has grown from a little Chinese port on a mudbank to a city of 3,259,000 people (the

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largest city on the mainland of Asia) and one of the world's greatest seaports. It contains nearly half the modern factories and large-scale business enterprises of China.

SOUTHERN CHINA

Southern China consists of the south-east coastal provinces of Chekiang and Fukien¹ and the four provinces of the Si-kiang ('West River') basin—Yunnan, Kweichow, Kwangsi ('West Kwang'), and Kwangtung ('East Kwang').

The South-east Coastal Region. Chekiang, Fukien, and the adjoining part of Kwangtung are very mountainous provinces, and differ in some respects from the rest of China, from which they are isolated by lofty mountain-ranges. Internal communications are very difficult, considerable areas having neither waterways nor roads. With the notable exception of the Min river of Fukien and the Han-kiang of Kwangtung, the rivers are short. The coast is indented with many inlets (really drowned valleys). The mountain-slopes are carefully terraced, although there is still much jungle, usually low bamboo thickets, and some timber. The lowlands near the coast and the lower terraces are used for rice, the higher slopes for tea. Barley, wheat, cotton, beans, orange, lemon, and mulberry are other products of importance.

The population is concentrated in the valleys and strips of plain within easy reach of the sea, which is the obvious outlet of the region. A high proportion of the coastal population spend all their lives in boats. Difficulty of access from the interior and the mountainous character of the country explain the very diverse dialects, of which there are over a hundred in Fukien alone. This region was once the chief tea-exporter of China, but the trade has declined, and to-day one may say that the chief export is men, who leave the overpopulated coastal belt

¹ Fukien = the 'Happily Established' province.

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to work in Taiwan, Malaya, or the Dutch East Indies, returning home when they have saved enough.

Ning-po (219,000—'the City of the Peaceful Wave') is a treaty port and the chief port of Chekiang Province. It is an old Chinese city, little influenced by Western civilization, although its industries—silks, cottons, and straw-plait (for hats)—are flourishing. The railway from



FIG. 89. CHINESE ANCESTRAL GRAVES, NING-PO

Each circular mound is a tomb. The graveyard is in the midst of the cultivated land, and is marked off by a grove of trees. Sometimes the tombs have elaborate stone monuments.

By courtesy of Professor P. M. Roxby

Ning-po runs west to Hangchow before turning north-east to Shanghai.

Foochow (323,000), a treaty port on the Min river, is the capital of Fukien. Until late on in the nineteenth century Foochow was the great tea-port of China, but with the growth of the Indian tea trade and the shifting of the Chinese tea markets to Hankow, which is better situated for the overland tea trade into Siberia and Central Asia, Foochow has declined in importance. It has lacquer, silk, and cotton industries. Amoy (234,000),

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another treaty port, stands on an island in a wide bay. It exports tea. Swatow (179,000), also a treaty port, stands at the mouth of the Han-kiang, in Eastern Kwangtung. It has an important sugar-refining industry.

The Si-kiang Basin. The Si-kiang rises in Yunnan and, like the Yang-tse, flows through gorges cut in the limestone ranges lying across its course. It continues eastward through the mountains of Kwangsi and Kwangtung, receiving many large tributaries, and enters the South China Sea in a great delta, after a course of over 1200 miles.

Yunnan Province is much larger than the British Isles, but its population is only 11,000,000. Physically Yunnan is a continuation of the plateau of Tibet, and its name, meaning 'the region south of the clouds,' implies the contrast with the cloudy basin of Szechwan to the north. The north-west of the plateau of Yunnan is deeply trenched by the parallel upper courses of the Salween, Mekong, and Yang-tse, and the rest of the plateau, about 6000 or 7000 feet above the sea, is also cut up by deep, narrow, fertile valleys. The winters are dry, bright, and mild; the summer days are rather hot, and the nights are cool. The heavy summer monsoon rains last from the middle of May until October. In many parts it is possible to obtain two crops a year, but the deep valleys are so unhealthy during the wet season that the farmers generally live in villages on the slopes high above their fields in the valley-bottoms. Rice (especially in the south), maize, wheat, barley, and beans are the chief food crops. Yunnan is the chief province for the opium poppy, which is sent down to Wuchow, at the head of navigation of the Si-kiang. Opium-smoking is still widespread in China, the practice being due originally to efforts to soothe the pains of rheumatism and sciatica brought on by working in the sodden paddy-fields.

Yunnan has great mineral wealth: tin, copper, gold, antimony, silver, lead, and iron are the chief minerals

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worked. There are also supplies of coal, of rather poor quality, tungsten, arsenic, and mercury.

The natives of Yunnan are near relatives of the Burmese and Siamese, the Chinese inhabitants having penetrated from the Yang-tse valley. The province is rather backward, owing to its remoteness from the rest of China. The capital, Yunnan City, is the centre of a fertile region, and has a tanning industry dependent on the hides and skins of local animals. It is the terminus of a railway down the Red River valley to Hanoi, in French Indo-China, a route used for the export of tin and other products.

Kweichow is another mountainous province, drained north to the Yang-tse and south to the Si-kiang. Like Yunnan, it is difficult of access, and only about a quarter of the inhabitants are Chinese. The rivers flow through deep gorges and the mountains are well forested, so that the province is famed for its beautiful scenery. Kweichow means 'the Precious District,' a reference to its mineral wealth, especially gold, silver, and iron. Rice, maize, tobacco, and the opium poppy are the chief crops, and silk is an important product. Kweiyang, the capital, is centrally placed for collecting silk, hides, skins, and other produce.

The provinces of Kwangsi and Kwangtung include the most important sections of the Si-kiang and its tributaries. Kwangsi is extremely mountainous and has no coast; but Kwangtung includes the extensive plain of the Si-kiang delta, and has a very long, indented coast-line. The Kwei-kiang tributary, which enters the Si-kiang at Wuchow, is navigable as far as Kweiling, and is connected with the Siang-kiang tributary of the Yang-tse by a canal. The Pei-kiang valley is used by the railway from Canton to the Yang-tse valley. The Nan-ling Mountains form much of the water divide between the Yang-tse and Si-kiang basins. The two Kwang provinces have long been densely peopled, and the forests have been largely

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destroyed. In consequence, when the rivers rise in their deep valleys their floods wash away the soils of the steeper slopes. Round the Si-kiang delta the mountains have gentler slopes and are largely grass-covered.

Kwangsi and Kwangtung are the warmest parts of China, for they are cut by the Tropic of Cancer, and have a tropical monsoon climate. Many of the mountain-ranges trend north-east to south-west, parallel with the curving coast, and thus at right angles to the wet summer monsoon winds. In addition to the heavy summer downpours there is some winter rainfall, so that the region is wetter than Central or Northern China. Climatic conditions are suited to tree-growth, and the forests that remain supply hard timbers, bamboo, spices, and camphor. Agriculture is possible at all seasons, and three crops are commonly harvested from the same ground during the year. The principal crops are rice (the staple food) and sugar on the alluvial lowlands, with tea on the hill-slopes. Other crops are mulberry, maize, cotton, barley, beans, hemp, indigo, oil-seeds, fruits, aniseed, and ginger.

Kwangsi still contains a large element of aborigines, the Chinese mainly occupying the valley-bottoms. Kweiling is the capital of Kwangsi. Wuchow, the chief town of the province, stands at the confluence of the Si and Kwei rivers, and is accessible by river-steamers from Canton. Wuchow is the collecting centre for cassia ¹ (a coarser kind of cinnamon), cinnamon, mace, cabinet woods, and wood-oil (obtained by crushing the seeds of the wood-oil tree, which flourishes in Kwangsi). Nanning, farther up the Si-kiang, commands valley routes into French Indo-China and Yunnan.

Kwangtung is one of the most densely peopled and most important provinces of China. Its peoples are energetic and progressive. Canton (861,000), the largest city of South China, has an excellent position on the

¹ The name Kwei-kiang means 'Cassia River.'

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Canton river, at the head of the joint delta of three navigable rivers—the Si ('West'), the Pei ('North'), and the Tung ('East')—which give access to a highly productive hinterland. The Pei-kiang valley leads northward to Kiangsi by the Meiling ('Plum-tree') Pass, and to Hunan by the Cheling Pass, near the route followed by the uncompleted railway to Hankow. Canton is sufficiently

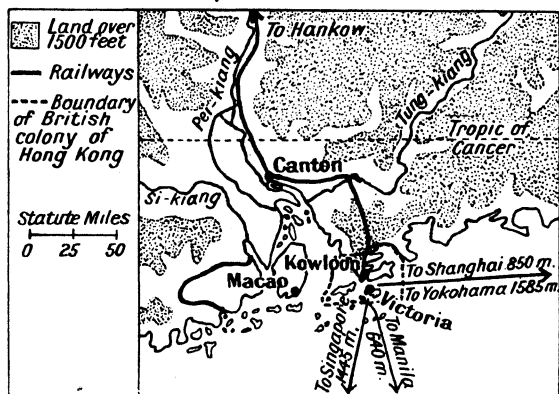


FIG. 90. POSITIONS OF HONG KONG AND CANTON

inland to be less exposed to the ravages of pirates, who are still troublesome along the coast. Canton was the first Chinese port to engage in trade with Europe, and it still has an extensive trade, although large modern vessels cannot reach it, but must use Victoria Harbour, Hong Kong. The Si-kiang navigation, however, is being improved below Canton. There are good roads round the city, but most traffic goes along the numerous waterways, and over one-third of the population of Canton live in boats. Canton has manufactures of cotton, silk, wool, steel, porcelain, and paper. The old walled town is a maze of narrow, winding streets, only accessible to pedestrians, wheelbarrows, and sedan-chairs. The modern residential

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and business quarter of the Europeans lies immediately north of the Chinese town.

Macao, standing on an island in a shallow bay south of Canton, has been a Portuguese settlement since 1557. It is only four square miles in area, with a population, including two smaller neighbouring islands, of 157,000 (largely Chinese). It shares in the import and export trades of Kwangtung, and is the centre of the opium trade.

Due south of the Luichow peninsula of Western Kwangtung lies the large island of Hainan (nearly 14,000 square miles). Its fertile coastal lowlands are inhabited by Chinese, but most of the island is a granite mass, with peaks rising to nearly 5000 feet, inhabited by aborigines.

Hong Kong. The Crown colony of Hong Kong was ceded by China to Great Britain in 1841. It is the great centre for British commerce with the Far East and a naval and military station of great importance. Hong Kong is an island, over 32 square miles in area, composed of an irregular, broken ridge of granite, rising in Victoria Peak to nearly 2000 feet, and separated from the mainland just east of the Canton river by a narrow, winding strait, the Lyeemoon Pass, about half a mile in width. The opposite peninsula of Kowloon, ceded to Britain in 1860, and certain neighbouring islands and portions of the mainland that have been leased from China bring the total area of the colony to 391 square miles—about half the size of Westmorland. The Chinese population of the colony is 820,000, and there are nearly 20,000 non-Chinese civilians, in addition to the British military and naval forces. Victoria (578,000), the capital, is a fine granite city stretching over five miles along the southern shore of the magnificent deep-water harbour between Hong Kong Island and the mainland. Victoria is a coaling-station, a naval dockyard, and a base for cable and wireless communications; it has extensive wharves for river and coastal vessels, warehouses ('godowns') and yards for shipbuilding and repairing. The docks and wharves for

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ocean-going vessels are on the mainland opposite Victoria. The residences of Europeans are mainly scattered over the hill-slopes behind Victoria, which culminate in the Peak. A cable tramway gives access to the summit of the Peak, whence one obtains a wonderful view of the busy harbour.

By its superior position and by British protection against pirates Hong Kong has replaced Canton as the trade centre for South China, and it has a huge entrepôt trade, handling sugar, flour, rice, cotton and cotton goods, woollens, silk, hemp, leather, tin, steel, oil, ground-nuts, fish, tea, coal, cement, condensed milk, and matches. The chief industries of Hong Kong are sugar-refining, shipbuilding and ship-repairing, rope-making, tin-refining, tobacco manufacture, and cement-making. The commerce of Hong Kong is chiefly with Great Britain, India and Ceylon, Australia, the United States, China, Japan, and Indo-China.

EXERCISES

1. Draw sketch-maps of the basins of (a) the Hwang-ho, (b) the Yang-tse-kiang, (c) the Si-kiang. Indicate important products and chief towns.
2. Indicate as clearly as possible the position and importance of (a) Shanghai, (b) Hankow-Hanyang-Wuchang, (c) Canton, (d) Hong Kong.
3. Discuss the relative merits of Peiping and Nanking as capitals of China.
4. Divide the Yang-tse basin into natural regions, and write a short account of each region.
5. Give an account of the production and importance in China of millets, wheat, rice, tea, and silk.

CHAPTER XIII

TIBET, SINKIANG, MONGOLIA, AND MANCHUKUO

THERE are certain vast territories in Central and Eastern Asia that for long periods formed part of the Chinese Empire, but within recent years have become to some extent independent of China proper or have been dominated by other Powers. These territories are Tibet, Sinkiang, Mongolia, and Manchukuo.

TIBET

Tibet, with an area nearly four times that of the British Isles and a population of only about 3,000,000, is part of a very lofty plateau extending eastward from the Pamirs and Karakoram Range between the Himalaya and Kuen-lun Mountains to the western frontiers of China. The general level of the plateau exceeds 12,000 feet, and it is crossed by snow-clad mountain-ranges towering a mile or two higher. Much of Kashmir and Sinkiang is physically part of the Tibetan plateau. Great height, and cold winds of extreme violence combine to make the climate very severe. There are striking differences between sun and shade temperatures in the rarefied atmosphere, which is remarkably clear and bright. The air is so dry that the snow-line is at a height of 20,000 feet in Central Tibet, as compared with only 17,000 feet on the Himalayas in Sikkim.

Northern Tibet, comprising the greater part of the country, is an arid, wind-swept, treeless waste of rounded ridges and flat, swampy valleys, in which numerous streams flow down into salt lakes. In summer a few wandering tribes bring their yaks and sheep to the scanty pastures, but otherwise the land is almost uninhabited.

TIBET

To the north-east lies the Kuku Nor division, really a part of Tibet, although the Chinese have claimed it as part of their New Dominion. Kuku Nor includes part of the Tibetan plateau and the eastern end of the Kuen-lun, but its northern part, bounded by the Nan-shan, is an area of lower plateau comprising the Tsaidam ('Market-place') basin, a region of salt swamps, and the Kuku Nor basin, with its large salt lake. The land supports a few nomads, and is important as the natural route between Mongolia and Lhasa. Twice a year caravans of merchants and pilgrims gather near Kuku Nor (the lake) to make the difficult journey to Lhasa.

South of Kuku Nor territory lies another part of Tibet which the Chinese have separated as part of the New Dominion, under the name of Chwanben. This includes the deep parallel valleys of the upper Salween, Mekong, and Yang-tse. It is a region of forests, abundant pasture, fertile valleys, and great mineral wealth. Through it passes the great trade in China tea, which the Tibetans prefer to Indian tea.

The most important section of Tibet is the extreme south, where an exceptionally long valley is drained north-westward by the Sutlej (rising in the sacred Manasarowar Lakes) and the Indus and eastward by the mighty San-po, known in India as the Brahmaputra. A very important trade route from Lhasa and Shigatse follows the upper Indus to Leh, whence other routes lead to Srinagar and Simla, by which gold and wool reach India. The San-po valley is very fertile; the climate is milder and wetter than elsewhere in Tibet; so that this is the most productive and best-peopled part of the country. The slopes are terraced and irrigated. Barley is the chief crop, but wheat, vegetables, peas, mustard, apricots, peaches, and grapes are also grown. The pastures of Southern Tibet support great numbers of animals—yaks, asses, sheep, goats, pigs, buffaloes, deer, antelopes, and camels. The yak, a long-haired species of ox, is of very great

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importance. It thrives on poor pasture, and is adapted to fierce winds and biting cold. It is the chief beast of burden, especially on steep, rocky tracks; it supplies milk and meat; its skin is used in making tents, domestic utensils, clothes, and boats; its long hair is woven into cloth; its droppings are used as fuel. Mules, ponies, donkeys, and even sheep are also employed as pack-animals. Gold, borax, and salt are the chief minerals worked at present. The main handicrafts are the spinning, weaving, and knitting of wool and the making of religious images and decorations.

Despite the difficult communications the Tibetans carry on a considerable trade. From China comes brick-tea—largely tea of poor quality mixed with ox-blood and moulded into bricks for convenience of transport on pack-animals. The Tibetans drink great quantities of tea, flavoured with salt and rancid butter. To China from Tibet go wool, furs, and drugs. Trade with India is carried on by pack-animals through lofty Himalayan passes between 14,000 and 18,000 feet above the sea, most of them impassable during seasons of heavy rain or snow. The most important route from India is from Siliguri, near Darjeeling, through Sikkim, to Gyantse and Yatung, the two chief trading centres. Tibet exports to India wool, furs, borax, salt, and ornaments of gold and silver, and in exchange receives rice, maize, and other cereals, cotton goods, and butter.

Shigatse, an important market centre, stands on the San-po, with fairly easy access to one of the Himalayan passes. Lhasa¹ (20,000), on a tributary of the San-po, is a circular city built in a very sheltered fertile basin, dominated on the western side by a three-peaked ridge, on which stands the Potala, the imposing palace-fortress of the Dalai Lama. Lhasa has for centuries been the 'Forbidden City,' strangers being jealously excluded. But

¹ Lhasa = 'God's Country.' The name is probably due to the welcome fertility of the valley in contrast with Northern Tibet.

TIBET

the city is now joined with Gyantse by a telegraph-line 144 miles long, and electric light is being introduced. Lhasa is the capital city, a market and road centre, and a place of pilgrimage for devout Buddhists, many of whom make very long journeys to secure the blessing of the Dalai Lama, who is regarded as the incarnation of

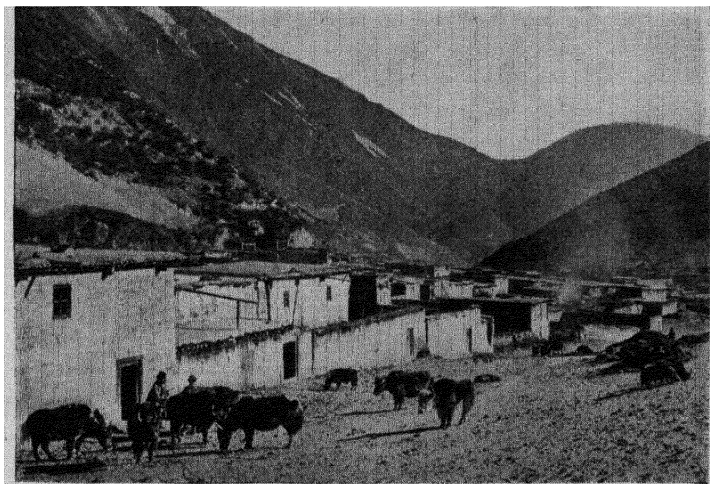


FIG. 91. TIBETAN VILLAGE

Altitude 11,500 feet.

Photo E.N.A.

Buddha. When the Dalai Lama dies a baby boy is carefully selected and brought up as the new incarnation of Buddha. The Dalai Lama is the real ruler of Tibet, which has long had a considerable measure of independence, despite the Chinese claim to overlordship.

The religion of most Tibetans is a corrupt form of Buddhism, and at least one-third of the male population are lamas, or monks. They usually live together in great monastery-fortresses, the largest of which contains 10,000 monks. Each monastery dominates its surrounding area

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and levies tribute in produce or in work from the peasantry.

The difficulties in the way of Indian trade with Tibet caused the Indian Government to send an armed mission to Lhasa in 1904, and as a result there was a steady growth in British trade and influence in Tibet. The Dalai Lama was friendly towards the British, but his death early in 1934 seems likely to result in a closer control by the Chinese. The Tashi Lama, the chief spiritual ruler, is seeking greater contact with China.

SINKIANG

Sinkiang, or the 'New Dominion,' consists mainly of Chinese Turkestan, and comprises all Chinese dependencies lying between Tibet and Mongolia. Sinkiang is nearly ten times the size of England and Wales, but its population is only about 1,200,000, the majority of whom are Turki peoples of Moslem faith, although the number of Chinese has greatly increased in recent years. The most important sections of Sinkiang are the Tarim basin and the Zungarian basin, separated by the snowy Tian-shan, or Celestial Mountains.

The Tarim basin is a great area of inland drainage, where four rivers, fed by the mountain snows, unite to form the Tarim river, which flows eastward into the salt-encrusted swamps of Lob Nor, the remnant of an old lake. On the west rises the great mountain mass of the Pamirs, through which pass two ancient routes linking China with Turan, and so with the Mediterranean countries. To the south of the Tarim basin lie the impassable Karakoram and Kuen-lun ranges, and to the north the Tian-shan, across which there are several routes from Zungaria. The southern part of the Tarim basin itself is the desert of Taklamakan, a trackless waste of bare, shifting dunes, composed of fine particles of soil that is extremely fertile if water is available. All round

SINKIANG

the margins of the Tarim basin there are numerous rivers coming down from the mountains, but the majority end in great fans, where the water is evaporated or absorbed. The basin is thus fringed with a narrow belt of vegetation and many oases, generally rather small, dependent upon irrigation from the streams. The whole Tarim basin has a climate of great extremes; dust-storms are frequent, and the land is very dry. There are no open grazing-grounds, although nomadic herdsmen graze camels on the thorny desert plants, and horses, sheep, cattle, and goats on the higher mountain pastures in summer. The majority of the people live in the oasis towns lying along the chief rivers. The string of oases along the west and north marks what has always been the chief line of communication and trade in the Tarim basin. The two main towns on this route are Yarkand and Kashgar, while on the southern margin Khotan is the only one of importance. All the large oases lie about 4000 feet above sea-level, and their chief crops are wheat, maize, barley, cotton, tobacco, hemp, fruits, and vegetables. Other products are wool, silk, hides and skins, jade, and gold. On the whole population and prosperity are steadily increasing.

Yarkand (75,000), on the Yarkand river, is the richest oasis of all and the centre of the trade in jade, the dark green stone so greatly favoured by the Chinese. Yarkand is famous also for its silks, cottons, and leather. From Yarkand a route strikes south through the difficult Karakoram Pass (nearly 19,000 feet) to Leh, in Kashmir.

Owing to its position at the junction of the two important routes along the margins of the Taklamakan Desert with the chief trade route over the mountains to the Amu Darya, Kashgar (70,000) has become the chief trading city, where Chinese, Hindu, Afghan, and Russian traders gather in the crowded bazaars, in which beautiful carpets, silks, jade ornaments, and other commodities are exposed for sale. Kashgar is a walled city of flat-roofed, mud-built

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houses and narrow streets crowded with camels and donkeys.

Khotan, on the Khotan river, is a similar centre, trading mainly with Kashmir and British India. It was the western terminus of the famous Jade route from China *via* the Wei-ho valley and Lanchow.

The Chinese officials responsible for the government of Sinkiang have their headquarters at Urumchi, an important market for skins, on the slopes of the Tian-shan, overlooking the Zungarian Gate, but the British Consul-General lives in Kashgar. Beyond the Tian-shan the upper part of the Ili river, which flows down to Lake Balkash, is included in Sinkiang. Urumchi was the ancient capital of the kingdom of Zungaria, parts of which are now included in Sinkiang and Mongolia. The Zungarian basin is a depression, varying from under 2000 to over 5000 feet, lying between the Tian-shan and Altai Mountains. The northern part of Zungaria consists of undulating stony plains, treeless, and containing only brackish wells; but the south and west, near the Tian-shan, have rich meadows and pasture-land. The basin forms one of the most important natural routes in the world—the Zungarian Gate—through which caravan routes have connected China with Western Asia and Europe from the earliest historic times. From Mongolia the chief caravan route reaches Hami, in Sinkiang, whence it diverges to the Irtysh valley or the Ili valley in order to reach Russian Turkestan. Another route from Hami is that along the Tarim river to Kashgar.

MONGOLIA

The vast region of Mongolia lies to the north-east of Sinkiang, and stretches away eastward into Manchukuo and south-eastward into China, while to the north lies Siberia. The greater part of Mongolia consists of the great basin of the Gobi ('Desert'), or Shamo ('Sand

MONGOLIA

Desert'), at about 2500 to 3000 feet above sea-level, shut in by high mountain-ranges. The Khingan Mountains form its eastern edge, and the Altai, Khangai, and Sayan Mountains penetrate it from the west. The climate is very extreme, with great ranges of temperature, both diurnal and annual. Winter is bitterly cold, summer is short, and rainfall very light—usually under ten inches a year. In the absence of permanent streams the chief forces of erosion are sun, wind, and frost, which shatter the rocks into the fine loess particles that have for so long been blown into Northern China in winter. Wind-erosion wears the cliffs into fantastic shapes and builds up belts of sand-dunes. The occasional torrential rains rapidly erode the loose rock particles and produce extensive alluvial fans along the foot of the mountains. The scanty vegetation of the Gobi Desert is short, wiry grass and low, thorny bushes, but the light rainfall of early summer results in the growth of thin grass and flowers over wide areas, supplying pasture for the animals of nomadic Mongols and Kalmuks. The northern and eastern margins of Mongolia have sufficient rainfall to support grasslands, and it is this steppe-land belt that contains the few towns, most of the population, and the important trade routes.

Mongolia has an area of about 1,875,000 square miles (half the size of Canada), but the population (excluding Jehu) consists of only about 750,000 Mongols and about 100,000 other people, mainly Chinese and Russians. The prevailing religion is the same form of Buddhism as that of Tibet, although in Outer Mongolia the political leaders have done their utmost to remove the influence of the lamas, or priests. The nomadic tribes of Mongols are entirely dependent on their flocks and herds of horses, camels, sheep, and goats. Men, women, and even children ride the hardy ponies, which are also the chief transport animals. The young men, mounted on fast ponies, have charge of the huge herds of ponies. These

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expert riders use a lasso consisting of a noose on the end of a stick, and they play their catch like a fish. The children look after the sheep and goats, while the women are naturally busy in the yurt, or tent. The yurt consists of a lattice framework, covered with felts and held down by ropes anchored to heavy stones, for there are violent wind-storms. A small group of yurts will form a village, usually in a fairly sheltered valley where wells have been dug. Animal droppings form the only fuel available. The villages are not moved more than is necessary, but for frequent journeys the Mongols use a simple ridge-pole tent, which can be pitched or struck in a few minutes.

Modern exploration has revealed many traces of some of the earliest settlements of the human race. As in Sinkiang, the many ruined cities and irrigation systems are testimonies of former civilizations that have decayed, possibly through the reduction in rainfall that has undoubtedly occurred. It was probably periods of drought that caused the Mongol tribes to invade China and Russia during the twelfth and thirteenth centuries. The extensive conquests of the great Mongol leaders Genghiz Khan and Kublai Khan have previously been mentioned.

Politically Mongolia may now be regarded as two regions—Outer Mongolia, with a population of 445,000 Mongols, 90,000 Russians, and 5000 Chinese, and Inner Mongolia, which is closely associated with China. In 1924 Outer Mongolia became a republic, run on Soviet lines, connected with Russia rather than with China. The chief wealth of Outer Mongolia is naturally its animals—horses, cattle, sheep, camels, and goats—and its leading exports are wool, hides and skins, furs, horsehair, horns, etc. There are many gold-mines, but few are worked at present, and there are deposits of copper, silver, iron, and tin awaiting exploitation. The only industries are one tannery, one brick-works, and one saw-mill. Ulan Bator Hoto¹ (Urga) (100,000), the capital, is the centre

¹ 'Town of the Red Heroes.'

MONGOLIA

of the historic routes along which for centuries camel caravans have carried on trade between China and Russia. Ulan Bator Hoto is thus the collecting centre for wool, hides, and other animal produce from Mongolia, brick-tea, silk, cotton, and porcelain from China, and furs, leather, oil, and manufactured goods from Russia. About 170 miles due north of Ulan Bator Hoto is Maichin, facing the Russian frontier town of Kiakhta, an important centre of the caravan trade, with access to the Trans-Siberian Railway. During the summer months motor-car services cross the Gobi between Ulan Bator Hoto and Kalgan, in Northern China. The journey of 1160 miles takes between three and six days.

Inner Mongolia, together with certain portions of the adjoining provinces of China proper, has been divided into the three provinces of Jehu, Chahar, and Suiyuan, each governed by a Tartar-General appointed by the Chinese Government. The area lying west of the great bend of the Hwang-ho is a region of mountain and plateau, largely a bare land of shingle, sand, and salty clay. Within the Hwang-ho bend lies the Ordos territory, a level steppe bordered by sand-dunes. The rest of Inner Mongolia, extending from the Hwang-ho bend to Manchukuo, is mainly a plateau over 2500 feet above sea-level, with many low, rounded, grassy hills. In April the melting snows and warm sun cover the land with bright flowers and fresh grasses. Indeed, this region is known as the 'Country of the Long Grass,' and is of great interest as one of the few potential grain-growing regions that still await full development. Chinese settlers are steadily increasing the cultivation of the region, and some of them are even invading the Gobi, where irrigation alone is needed to produce heavy crops. The Great Wall of China forms most of the southern boundary of Inner Mongolia, reaching the sea at Shanhaikwan ('Mountain-sea-gate'). The railway from Peiping to Kalgan is continued to Suiyuan. Kalgan is the starting-point for

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the caravans to Ulan Bator Hoto to the north and to Suchow to the west, bringing hides and skins into China and taking away silk, tea, and cigarettes. Kwaihua, near Suiyuan, is an old Mongol town, with important monasteries; it has a great market for skins, camel-hair ropes, and other Mongol products.

The province of Jehu, formerly part of Inner Mongolia, was annexed to Manchukuo by the Japanese in 1933. (See p. 362.)

MANCHUKUO

Manchukuo, with an area over three times that of the British Isles, lies east of Mongolia, and its eastern margin is the Usuri tributary of the Amur river and the Japanese possession of Chosen. The northern boundary is the Amur itself. In latitude and in position on the east of the continent Manchukuo resembles the eastern part of North America, between James Bay and Maryland.

Manchukuo consists of a great central plain practically encircled by mountains. The chief range on the west is the Khingan Mountains, about 4000 or 5000 feet high, which are really the edge of the Mongolian plateau. The Khingan and other mountains of the north and west are well forested with birch, larch, fir, aspen, elm, oak, spruce, and pine. The mountains of Eastern Manchukuo continue beyond the Liaotung peninsula into Shantung, separated by the Strait of Pechihli. The chief eastern range is the Changpei-shan ('Long White Mountains'), which rise in the peak of Pei-shan to 8500 feet. These eastern mountains have magnificent forests of oak, ash, walnut, poplar, spruce, fir, pine, and larch, many growing to a great height. The mountains also contain considerable mineral wealth, and although their population is scanty at present, their resources ensure great developments in the future. The valley of the Yalu river, which forms part of the boundary with Chosen, is a lowland of some importance.

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prairies. Summer is fairly hot and winter very cold, with strong cold winds, like those of Northern China. The moderate rainfall comes almost entirely from the summer monsoon. September is warm and dry, and thus very favourable for harvesting.

The total population of Manchukuo is estimated (1933) as 34,245,000, and is distributed as follows: ¹

PROVINCE	AREA IN SQUARE MILES	POPULATION	CAPITAL
Fengtien . . .	71,508	15,152,000	Fengtien
Chilin . . .	103,379	9,192,000	Chilin
Hei Lung Chiang	169,728	4,400,000	Chichiharh
Hsingan . . .	147,465	920,400	—
Jeho . . .	60,550	4,670,000	Jeho

Except for a few scattered communities, there is no longer a Manchu population in Manchukuo, which has been peopled by Chinese immigrants, especially from Shantung and North China. In some years over 1,200,000 Chinese immigrants have entered Manchukuo, attracted by its greater opportunities for work and settlement. Manchukuo has, in fact, grown more rapidly in wealth than any province of China proper, owing partly to its great natural resources of agriculture, minerals, forests, and fisheries, but above all to the railway and industrial developments, for which the Japanese are mainly responsible. There are wonderful timber resources, practically untouched in many areas, although in the east the forests are being cut down to supply fuel for locomotives and river-steamers, and considerable quantities of timber, mainly coniferous, are floated down the Sungari and Yalu for export. Alluvial gold has been panned for centuries in many small streams, but there remain extensive deposits in the northern valleys and the Yalu basin. Other minerals are silver, lead, asbestos, and soda, but the most important mineral of Manchukuo at present is

¹ The figures are supplied by the Japanese Embassy.

MANCHUKUO

coal. Modern coal-mining was begun by the Russians, and has been vigorously developed by the Japanese since they took control of the principal mines (the Fushun), to the east of Fengtien. The Fushun coalfield occupies a river valley, and the seams are so thick and near the surface that the coal, which is of good quality, is obtained by quarrying in terraces, so that the dangers of fire-damp

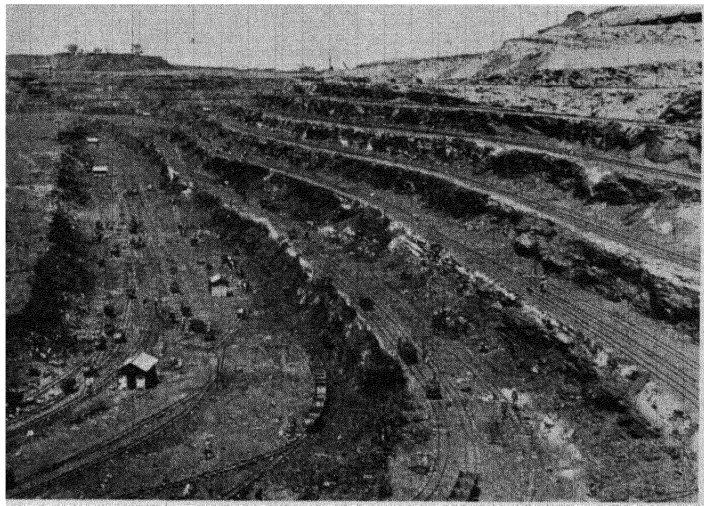


FIG. 93. THE OPEN COAL-MINE AT FUSHUN, MANCHUKUO

Mining costs are obviously low under such conditions.

By courtesy of the Japanese Ambassador

and floods do not exist. A large gas-plant has been established on the coalfield, and by-products and other industries are increasing. The coal at Fushun is overlaid with oil-shale, which presents the possibility of a mineral-oil industry. There has been a steady increase in the export of coal, mainly to Japan, and in the consumption of coal in Manchukuo itself.

Manchukuo has extensive supplies of iron ore. The

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chief developments have occurred in the Liaotung Mountains, within easy reach of the coalfields. The iron ore of this region has rather a low metal-content (35 per cent.), but the quantity is very great. The ore is smelted locally and exported as pig-iron to the steel-works of Japan.

Agriculture has been developed in Manchukuo far more than any other natural resource, as one would expect from the Chinese. By far the most important crop is soya-bean, which has become highly important in international commerce within the last twenty years. The soya-bean was an important food in China for several thousand years before its unique qualities were recognized in Europe and America. As a legume it does not impoverish the soil, but actually increases the amount of nitrogenous plant-food. The beans may be eaten fresh, dried, or canned, and their high content of oil makes them exceptionally nourishing. They may be used in making soups, sauces, breakfast foods, biscuits, macaroni, flour, and a kind of vegetable milk, from which cheese and casein can be prepared. The bean-oil can be used in making margarine, lard substitute, salad-oil, soap, paint, varnish, enamel, celluloid, printing inks, glycerine, and explosives. The bean-meal from which the oil has been crushed is valuable as a cattle food, as a fertilizer, and for making breakfast foods, etc., for human consumption. There are now hundreds of mills for bean-crushing in Southern Manchukuo. Beans and bean products are exported chiefly to China and Japan, and bean-oil goes in large quantities to Europe and North America. About one-quarter of the land under crops is devoted to soya-beans, and Manchukuo produces over 63 per cent. of the world's output.

Millets rank next in importance to soya-beans, and are the staple food of the inhabitants. The *kaoliang*, a large millet of South Manchukuo, is particularly important. It grows to a height of ten or twelve feet, and provides human food and animal fodder, while the stalks are used

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for fuel and as materials for roofs, mats, and fences. Wheat, for which conditions are extremely good in the Sungari valley, is grown almost wholly for export, although about forty mills now grind about 15,000,000 sacks of flour annually. Maize is also important in South Manchukuo for human and animal (chiefly pig) food. Other crops worthy of note are rice, barley, buckwheat, hemp, tobacco, cotton, indigo, opium, sugar-beet, flax, and fruits.

Pigs are the most numerous animals, especially in the south, while there are more sheep and cattle in the north. Horses, donkeys, and mules are also kept by the Chinese as farm animals.

Modern industrial developments are mainly due to Japanese enterprise. Reference has already been made to coal-mining, iron and steel manufactures, bean-crushing, and flour-milling. Brewing, distilling, beet-sugar-refining, and cement-making are other industries of note.

Soya-beans and bean products are the greatest class of exports from Manchukuo. Other items of importance are wheat and other cereals, coal and coke, silk, lumber, and pig-iron. The chief imports are cotton yarn and cloth, flour, metal goods, tobacco, kerosene, and machinery and other manufactures.

Transport. The old methods of transport in Manchukuo were by junk, barge, cart, and sledge. Rapid modern developments have been almost wholly dependent on railways. China has colonized Manchukuo, but railway construction has been due to Russia and Japan, who have long taken a keen interest in Manchukuo, with its prospects for economic development. The South Manchukuo Railway, of standard gauge, was constructed by the Russians, but after the Russo-Japanese War of 1904-5 it was transferred to Japan, together with the Russian lease of the Kwantung peninsula, with its ports of Dairen and Port Arthur. In Japanese hands the South Manchukuo Railway has played a part in Manchukuo comparable

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with that of the Canadian Pacific Railway in Canada. In addition to its transport business, the company has engaged in manufacturing, warehousing, shipping, mining, and the development of estates, and in the course of its work has built twenty-five cities. The total length of the railway is now about 700 miles, including the main line (438 miles) from Hsinking to Dairen. From Fengtien an important branch goes to Antung, at the mouth of the Yalu, thus connecting with the Chosen railways (about 1000 miles in length) and giving access to Fusan, the port nearest Japan. Another railway joins Fengtien with Tientsin and Peiping, and so with other parts of China.

The Chinese Eastern Railway (1078 miles) was constructed by the Russians between 1890 and 1898 as the shortest route from the Trans-Siberian Railway to Vladivostok. The Chinese Eastern Railway, of Russian broad gauge, is centred on Harbin, which is also joined to Hsinking, where the gauge changes on the South Manchukuo Railway. In 1924 China agreed to give Russia complete control of the railway, and all officials and workers had to be Russian or Chinese. In the meantime the Japanese have constructed a standard-gauge line from Szepinkai (Sipingchi) (south of Hsinking) northward to Chichiharh, whence the line will soon be completed to Heiho (Sahaljan), on the Amur, opposite Blagovyeshchensk. This line, giving through-traffic without change of gauge, must inevitably take away the traffic of the Chinese Eastern Railway, and also tap some of the trade of the Amur valley at present carried by the Trans-Siberian Railway. It is not surprising, therefore, that Russia offered to sell the Chinese Eastern Railway to Japan, and in September 1934 an agreement was reached on the question of price. Another Japanese line from Hsinking through Chilin gives access to Seishin, a port of north-east Chosen. Other lines under construction or projected are indicated in Fig. 92.

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Towns. Chichiharh (Tsitsihar) (90,000), at the head of navigation of the Nonni, commands the Chinese Eastern Railway bridge across the river and the junction with the new line under construction towards Heiho. Harhpin (Harbin) (384,000), on the Sungari, is the most important industrial and railway centre of Manchukuo, with the exception of Fengtien. Harhpin is the junction of several important existing or projected railways, it commands the bridge of the C.E.R. across the Sungari, and it can be reached by large steamers. Harhpin is the great market for wheat and soya-beans, and has mills for flour, bean-oil, and timber. Chilin (Kirin), due south of Harhpin, has similar industries. Hsinking¹ (Changchun; Kwancheng) (130,000), due west of Chilin, stands where the two different railway gauges meet, and its central position has made it the present capital of the country.

Fengtien (Mukden) (400,000), in the middle of the Liao valley, was the old Manchu capital, and has long been the largest and most important city of Manchukuo. It is the greatest railway centre, and has flour-milling, oil-pressing, and other industries. Yingkow (Newchwang) (110,000), near the mouth of the Liao river, exports soya-beans and bean products, wheat, silk, and other Manchukuo products, and imports cotton goods, machinery, kerosene, and sugar. Antung (143,000), on the estuary of the Yalu river, exports the timber sent down the river, and is a great silk centre.

The **Kwantung** ('**Eastern Barrier**') peninsula, in the extreme south of Manchukuo, is Japanese territory, and has two magnificent ice-free harbours, conveniently placed for the coal-supplies of Fushun—Port Arthur and Dairen (370,000). Kwantung Territory is nearly as large as Hampshire, and has a population of 1,328,000, in which Chinese are nearly five times as numerous as Japanese. The dominating position of Kwantung in relation to

¹ 'New Capital.'

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Manchukuo and North China is apparent from the map, and Port Arthur is a strong naval station.

Farming is carried on in Kwantung, there is a flourishing fishing industry, and the salt industry is important. The Japanese have made Dairen ('Far Away') into one of the greatest ports of the Far East, ranking next to Shanghai among ports of the Chinese lands. Its fine deep-water harbour is protected by a breakwater 1000 yards long, and the port is extremely well equipped. Dairen handles the bulk of Manchukuo trade, which is mostly with Japan and China.

Within recent years the political problems of Manchukuo have been well to the fore. The struggle between Russia and Japan for control of Manchukuo seems to have been decided in favour of Japan, whose main object is to secure markets for her manufactured goods by developing to the full the great resources of the country. There has hitherto been no question of Japanese colonization, for her people do not like the harsh winters, and her working classes are unwilling to compete with the lower standard of living of the Chinese peasants. Japan proposes to settle 500,000 immigrants in Manchukuo within the next ten years, but a subsidy will probably be necessary to induce settlers to go. As developments were hampered by the activities of bandits the Japanese invaded Manchuria, as it was then called, in the autumn of 1931; in the spring of 1938 they turned Manchuria into an independent State, with the new name of Manchukuo, meaning 'Country of the Manchus'; and in March 1934 Pu-Yi, the former Emperor of China, became Emperor of Manchukuo. China has not relinquished her claims to Manchukuo, and the League of Nations has condemned Japanese military action there, with the result that Japan has resigned from the League. So far Japan and the small Central American republic of Salvador are the only countries to recognize Manchukuo as an independent State. The country really belongs to the 30,000,000

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Chinese inhabitants, but is almost wholly controlled by a small number of Japanese, of whom there are only 300,000 in the country. The Japanese, with their fine organizing ability and efficiency, are certain to develop the resources of Manchukuo for the benefit not only of Japanese industrialists, but also of the inhabitants of Manchukuo. If Japan had not taken the law into her own hands in Manchukuo it might have been possible for the League of Nations to entrust the welfare of that country to Japan as a mandated territory.

EXERCISES

1. State the possibilities for future economic development in Tibet, Sinkiang, and Mongolia. Which great nations are interested in these territories, and why?
2. Explain, with reference to Asia, the chief characteristics of an area of inland drainage.
3. Criticize Japanese interference in Manchukuo, and decide whether you approve or condemn such interference in the light of its effects upon (a) the development of Manchukuo, (b) world peace.

CHAPTER XIV

THE JAPANESE EMPIRE

IN the island of Yezo, or Hokkaido, there live a few descendants of the original inhabitants of Japan—the Ainus, a race allied to the Indo-European. They are a remarkably hairy people, the men growing luxuriant beards. They thus present a striking contrast to the other peoples of the Far East. At an early date Malayan seamen reached Japan by the island stepping-stones from the south. But the largest elements in the early peopling of Japan came as invaders by way of the neighbouring Chosen peninsula, from 1000 B.C. Probably most of these invading peoples were of Mongol stock, but there were some from the plateau of Irania and even Arabia. Just as the various peoples of early British history—ancient Britons, Angles, Saxons, Jutes, Normans—intermingled to form the English nation, so the different elements living in the Japanese islands, shut off from intimate contact with the mainland, have fused together to produce the Japanese nation. Except for their shorter stature, the Japanese closely resemble the Chinese in physique and appearance. They are, perhaps, more quick-witted than the Chinese and more ready to profit by new ideas and methods. The Japanese naturally based their civilization upon that of China, whence they derived their literature, art, and learning, and they also adopted a simplified form of Chinese writing. The teachings of Confucius found ready acceptance in Japan, while Buddhism, introduced from China by way of Chosen, still remains the chief religion of the Japanese. The Japanese are intelligent, skilful, and persevering. They are great lovers of nature and of children.

English visitors to Japan are usually struck by the

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simplicity of Japanese life. The typical Japanese house has a tiled or thatched roof, but the rest of the house is made of wood and oiled paper. The doors and windows are not on hinges, but are made to slide in grooves. The interior is divided into rooms by sliding partitions, and by removing these two or three rooms can be turned into

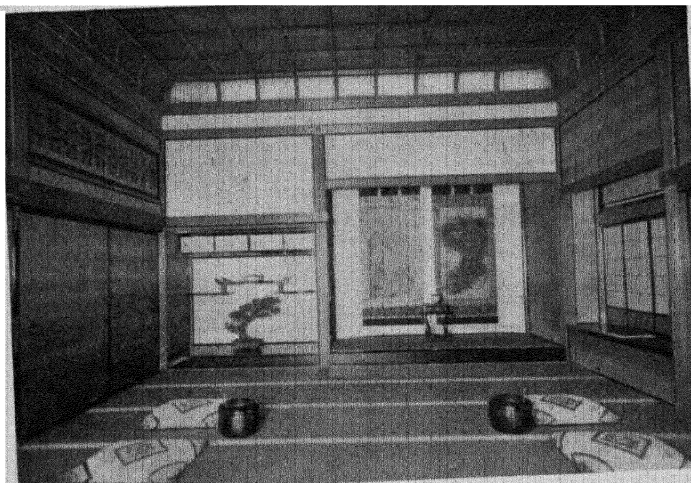


FIG. 94. GUEST ROOM IN A JAPANESE HOUSE

The simplicity of Japanese life is apparent. Note the four cushion seats, the two little charcoal stoves, the dwarf tree, the alcove in which two pictures are displayed, the sliding partition (of paper) on the left, and the paper windows on the right. It has been discovered that the paper windows admit the ultra-violet light rays.

By courtesy of the Japanese Ambassador

one large one. The rooms contain very little furniture, and usually only one picture (appropriate to the time of year) is displayed. The floors are covered with rice-straw mats, and the size of a room is indicated by the number of mats used to cover the floor. It is usual to sleep on thick, wadded rugs laid on the floor, and in the morning these are rolled up and packed into a cupboard. Chairs are not needed, as one sits on a cushion on the floor.

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Tables are also unnecessary, but if one is used it will be only a few inches high. It is not difficult to keep such a house clean, particularly as it is customary to take off one's outdoor shoes before entering the house. The house is bright and well ventilated in summer, but rather cold in winter, as the bowl of charcoal used for heating takes rather a long time to warm a room. Such houses withstand earthquake shocks better than those more solidly constructed of brick or stone, and in the event of their destruction they are cheaply and rapidly replaced.

In the country districts of Japan conditions of life change very slowly; but in the great cities, which are becoming increasingly like those of Europe or America, more and more Japanese are adopting the things associated with Western peoples—in dress, furniture, food, customs, games, and amusements.

As an independent nation Japan has persisted longer than any other in the world without conquest by invasion. The Japanese claim that their empire was founded by the first Emperor in 660 B.C., and that the dynasty founded by him still reigns. The interest of Europe in Japan was aroused by the descriptions of Marco Polo, and about the year 1550 Portuguese sailors and missionaries visited Japan. In less than a century, however, there were so many disputes and conflicts that finally the Japanese expelled all Europeans, and the Japanese themselves were forbidden by their rulers to leave the country or to have any contact with Europeans, with the exception of a small group of Dutch traders living in a tiny neighbouring island. For two centuries Japan remained in isolation, until in 1854 the presence of the United States fleet induced her to enter into a trade treaty. Great Britain, France, Russia, and Holland succeeded in exacting similar trade treaties. Despite their dislike of foreigners, thoughtful Japanese quickly recognized the superiority of the Western nations in the arts of peace and war, and there began the movement which resulted in the rapid

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Westernization of Japan—an astounding accomplishment of tremendous significance in human history.

From the twelfth century the Shogun, or Prime Minister, was the real ruler of Japan, the Emperor being a mere figurehead. Neither the Shogun nor the Emperor, however, exerted much authority over the *daimios*,¹ or nobles, who oppressed their serfs and waged war upon one another very much as did the feudal lords of medieval Europe. The Japanese feudal system persisted until the period of renewed contact with European civilization in the nineteenth century, when a group of reformers, including many *daimios*, carried through an almost bloodless revolution. The Shogun was compelled to resign, and since 1868 the Emperor has been the real sovereign of the State. Most of the *daimios* then willingly surrendered their ancient privileges, and in 1871 the feudal system was abolished. National forces were formed, based on compulsory service in the Army or Navy from the age of twenty. In 1889 Japan adopted a written constitution: the Emperor, as head of the State, is assisted by a Cabinet and a Privy Council. The Imperial Parliament consists of a House of Peers and an elected House of Representatives.

In every department of life the Japanese effected a remarkable transformation. Western ideas and methods were copied and adapted to the needs of the country. Codes of laws were drawn up; schools and universities were established; railways, steamships, and factories were constructed. War with China in 1894-95 added Taiwan to the Empire and brought Chosen under Japanese influence. The way in which Japan came to dominate Manchukuo, since the Russo-Japanese War of 1904-5, has already been described. This war proved the Japanese to be apt pupils of the Western nations in military and naval strategy, and raised their country to the status of a world Power.

¹ The name *samurai* was also applied to the *daimios* and their military retainers.

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Area and Population. The Japanese Empire consists of the following territories: ¹

TERRITORIES	AREA IN SQUARE MILES	PERCENTAGE OF TOTAL AREA	POPULATION (1930 CENSUS)	POPULATION PER SQUARE MILE
Honshiu (mainland) . . .	88,919	34.11	48,681,560	547
Shikoku	7,248	2.78	3,309,634	457
Kiushiu	16,247	6.23	9,068,967	558
Hokkaido (Yezo)	30,332	11.64	2,812,335	93
Riu-kiu (Luchu Is.) . . .	921	0.35	577,509	627
Chishima (Kurile Is.) . .	3,944	1.51	—	—
Total (Japan proper) . .	147,611	56.62	64,450,005	437
Chosen (Korea)	85,228	32.70	21,058,305	247
Taiwan (Formosa)	13,840	5.31	4,592,537	331
Bokoto (Pescadores) . . .	49	0.02	—	—
Karafuto (Japanese Sakhalin)	13,934	5.35	295,196	21
Total (Japanese Empire)	260,662	100.00	90,396,043	347
Kwantung	1,438	—	1,328,011	924
South Sea Mandated Territories	830	—	69,626	84

The most pressing problem that faces Japan is how to supply the needs of her huge and rapidly growing population, which is increasing by about 900,000 per annum. The chief island, Honshiu, is as large as Great Britain, but has only one-third as much arable land; yet it has to support 4,000,000 more people. The total of arable land in the whole of Japan proper is less than the farmed land of Ireland. Nevertheless by intensive scientific cultivation the rice output of Japan has nearly kept pace with the growing population, the crop having almost doubled within fifty years. But there is obviously a limit to the amount of food that Japan herself can produce.

¹ The figures are supplied by the Japanese Embassy.

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The population is still increasing, and the standard of living is steadily improving. In the past the chief checks on population were disease and war. But medical science has largely conquered pestilence, and even a great war—which no one wants—would not seriously reduce the population, although it would further impoverish the country.

Emigration has been suggested for the surplus millions

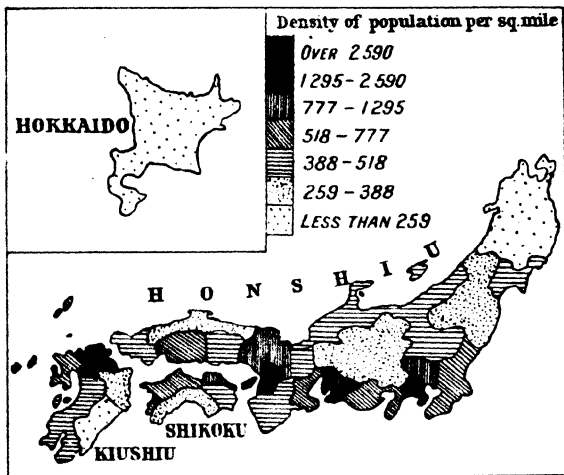


FIG. 95. DENSITY OF POPULATION OF JAPAN
Based upon the prefectures. The boundaries of prefectures have been omitted where there is no change in population density.

of Japan, but it offers little hope for the solving of the problem. The Japanese are not fond of emigrating,¹ and very few have gone even into areas already available to them, such as Taiwan, Chosen, and Manchukuo, partly because they would be competing with natives of a lower standard of life. No doubt many Japanese could settle in British Columbia, the Western United States, New

¹ In 1932 only 672,000 Japanese were living outside their own country, including 437,000 in America, 3500 in Australasia, and 228,000 in mainland Asia.

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Zealand, and—above all—the vacant tropical areas of Australia. These territories at present will not admit Japanese settlers; but even if all restrictions were removed the overpopulation problem would still be far from solved, for emigration and settlement on the gigantic scale required are a practical impossibility, in view of the increasing numbers in Japan itself. Emigration would help to relieve the pressure only to a small extent.

A drastic reduction of the birth-rate of Japan, leading to a decline in the total number of inhabitants, might ultimately solve the population problem; but in Japan, as in China, the people believe in having large families. It is clear that greatly increased importations of foodstuffs and other commodities are necessary to supply the needs of the growing population, and these can be obtained in only one way—by the development of manufacturing industries and the expansion of export trade. Since the Great War, but above all in the past few years, Japan has built up great manufacturing industries (cotton, artificial silk, hardware, etc.). The abundance of skilled workers available for long hours at low wages,¹ the adoption of the most modern machinery, and a high degree of efficiency in the organization of production and marketing have enabled Japan to undersell her great trade rivals to such an extent as to capture a considerable share of the world's trade. A reduction in the value of Japanese money in terms of that of other countries has helped still further to reduce the cost of her goods abroad. Finding it impossible to compete with the extraordinarily cheap goods² of the Japanese, other nations have placed trade restrictions (high tariff duties and quotas) on Japanese imports.

¹ Japanese wages seem very low compared with those of Britain or America, but one must bear in mind the fact that the Japanese worker's standard of living is much simpler: he is mainly a vegetarian, demands few luxuries, and is easily satisfied. (See also pp. 365-366.)

² Japanese undervests can be delivered in India at less than a penny each, and bicycles in Europe at 10s. 6d.!

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Obviously there will be endless trouble if the world cannot find satisfactory solutions for such problems as the overpopulation of Japan and other countries. The world as a whole can certainly produce far more supplies of food and other necessities (and luxuries too) than are required by the present numbers of the human race. But all the grave problems involved in relieving overpopulated regions, peopling underpopulated areas, and increasing the standard of life of mankind in general cannot be solved by the isolated action of individual nations: they are problems that call for international co-operation.

Japan claims the right to create a system of orderly government in China and Manchukuo and to exercise some control over the relations of other peoples with those countries, and she certainly has greater interests than any other nation in the political stability and economic development of the Far East.

JAPAN PROPER, OR NIPPON ¹

Japan proper consists of the four large islands Hokkaido, Honshiu, Shikoku, and Kiushiu, together with adjacent small islands, and extends in a north-east to south-west curve from 30° N. (the latitude of Cairo, Egypt) to 45° N. (the latitude of Bordeaux and Belgrade). The whole Japanese Empire extends along a much greater arc of Eastern Asia, Taiwan being cut by the Tropic of Cancer and Karafuto reaching 50° N. (the latitude of the Lizard, in England). Japan forms part of the festoon of islands extending from the Kamchatka peninsula to the East Indies. The islands consist mainly of ranges of fold mountains, which mark the real eastern edge of Asia. Subsidence has separated them from the mainland and formed the seas of Okhotsk, Japan, East China, and South China, which are for the most part comparatively shallow.

¹ Nippon 'Sunrise' The Japanese flag is the red rising sun on a white ground.

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But from the high folded ranges of Japan there is a rapid descent eastward into one of the deepest parts of the Pacific, including the Tuscara Deep (over five miles). Crustal conditions here are very unstable, so that earthquakes and volcanic activity are common occurrences along the eastern side of the islands and much more rare on the western, or inner, side of the great arc. On an average Japan has 2000 shocks a year, but the great majority are scarcely noticeable, and only occasionally does one result in really serious damage. Earthquakes on the sea-bed sometimes give rise to great waves, which may cause appalling damage on lowland coasts. The worst disaster in Japanese history was the earthquake of September 1, 1923, which completely ruined Yokohama and destroyed half Tokyo. In all nearly 100,000 people were killed, and damage to property in Tokyo alone exceeded £150,000,000.¹ Of more than two hundred volcanoes in Japan over fifty are active, like Asama-yama, which destroyed fifty towns in the violent eruption of 1783. The majority of the volcanoes are either extinct or dormant. Fuji-yama ('Peerless Peak') is a dormant volcano rising in a beautiful regular cone to over 12,000 feet. Its lower slopes up to 8000 feet are forest-clad, its summit is snow-capped, and its northern slopes have several picturesque lakes in snow-fed streams dammed by volcanic ash. Fuji is regarded with reverence by the people, and takes a prominent place in Japanese art. There are at least 1200 mineral springs associated with the volcanic areas of Japan, the majority of them hot springs. The more important hot springs are popular health and holiday resorts.

The Japanese islands are very mountainous, and one may distinguish two parallel chains of fold mountains separated by a long, deep valley with precipitous sides remarkable for its association with violent earthquakes.

¹ *Banzai!* a novel by John Paris, gives a vivid account of this earthquake the greatest ever known.

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and volcanoes. In the south this valley forms the Inland Sea, but in Central Honshiu, where it cuts across the great square highland core of the island, it has been largely filled in with volcanic materials. The western side of this highland mass is the Hida ranges, or Japanese Alps, the loftiest mountains in Japan, with a few peaks exceeding



FIG. 96. THE KAMIKOCHI VALLEY.
Snowy peaks, deep glacial valleys, full-flowing rivers, all typical of Honshiu.

By courtesy of the Japanese Ambassador

10,000 feet. Hokkaido has a central mountain-knot due to the meeting of the Japanese folds with those of the Kurile Islands, and Kiushiu has a similar knot where the Japanese folds meet those of the Riu-Kiu Islands.

The absence of extensive lowlands is the most serious handicap facing Japan. The largest lowland area is in South-east Honshiu, where the Kwanto plain supports over 10,000,000 people. Apart from this, there are only

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small plains. It follows that the rivers are comparatively short and swift. They are of little use for navigation, except for small vessels near the coast, but the alluvial fans which they deposit on reaching the foot of the mountains form some of the best agricultural land in Japan. The rivers are also useful for floating down lumber from the mountain forests; their waters are used to irrigate the paddy-fields; and hydro-electric power developments are supplying cheap power and light for industrial and domestic purposes. Of the many beautiful lakes in Japan the largest is Biwa ('Lute'), lying just over 300 feet above sea-level north-east of Kyoto.

In proportion to its area Japan has a very lengthy coast-line, with many excellent natural harbours. The Inland Sea is remarkably sheltered, and forms a great highway through some of the most important parts of the country. It abounds in beautiful islands, inlets, and headlands, and is encircled by terraced or forested hills, dotted with numerous towns and villages. The Inland Sea proved an admirable school for the training of fishermen and sailors.

Climate. Japan is often called 'the Britain of the East,' but, apart from the fact that both countries consist of islands lying off the coast of a continent, there is little resemblance between them. Japan is nearer to the equator; its lowlands are small in extent; earthquakes and volcanic activity are common; there is no extensive continental shelf on the oceanic side; Japan is poor in coal and iron, but rich in water-power—all in marked contrast with the British Isles. But perhaps the greatest difference is in climate. The climate of the British Isles, lying in the belt of south-westerly variable winds, is dominated by the Atlantic Ocean. The climate of Japan, on the other hand, is dominated by the monsoons of continental Asia: it is thus an east-coast climate, only slightly modified by the surrounding seas. In winter strong north-west winds blow from the mainland across the Sea of Japan. There

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winds are at first very cold and dry, but in crossing the Sea of Japan they are warmed and absorb much moisture. Their warmth and capacity for water-vapour are increased by a westerly branch diverted from the Kuro Siwo ('Black Stream'), the warm current which washes the eastern shores of Japan. In winter the west coast is thus a little warmer than the east coast. The mountains drive up the

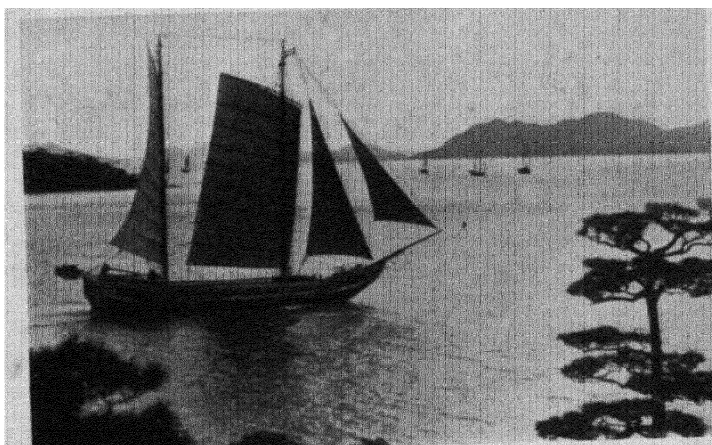


FIG. 97. THE INLAND SEA, JAPAN

north-west winds, causing heavy precipitation (mainly snow) on the western side, while the rest of the country is rather dry. Despite the influence of the Sea of Japan, however, the islands are as a whole colder than any others in the same latitude. The northern half of Japan has a January temperature below 32 F., conditions being affected by the cold Kurile Current,¹ while the shores of the Inland Sea, in the latitude of Morocco and

¹ This current is sometimes called the Kamchatka, Okhotsk, or Bering Current.

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Southern California, are no warmer than the English plain.

In summer the temperature of Hokkaido resembles that of Southern England (60° – 64° F.), but the southern half of Japan is hot, its July temperature of 75° to 80° F. being similar to that of other lands in the same latitudes. From May to September or early October the south-east monsoon prevails, bringing heavy rainfall, particularly to the highlands and east coasts, while sheltered valleys are fairly dry. The Kuro Siwo, with a temperature about ten degrees higher than that of the surrounding ocean, greatly increases the vapour capacity of the winds. June to mid-July is normally a very wet period of oppressive weather. August is usually hotter and drier, but September is wet and stormy, owing to frequent typhoons, which sweep northward from the Philippines, and then turn north-east, following the Kuro Siwo—a course similar to that of the hurricanes of the West Indies. An unusually violent typhoon swept along the Inland Sea on September 21, 1934, destroying many lives and doing incalculable damage to property in Osaka, Kobe, and even as far east as Tokyo. Fogs are prevalent in the north of Japan, owing to the mingling of the cold air of the Kurile Current with the warm, moist air of the Kuro Siwo, conditions in Hokkaido resembling those of Newfoundland.

On the whole the climate of Japan is healthy and advantageous. The damp heat of summer is trying to man, but it causes very rapid plant-growth; while the dry cold of winter is bracing and helps to break up the soil and destroy insect pests. Finally, the heavy rains and snows furnish abundant water for irrigation and hydro-electric power, although the swift rivers tend to wash away the soils and silt up the harbours.

Natural Vegetation. Climatic conditions obviously favour the growth of trees, and the mountainous character of the country has tended to prevent the destruction

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of the forests; so that nearly half the area of Japan proper is still forested. In the south the trees are of sub-tropical type, such as camphor and evergreen oak, with many bamboos. Most of Honshiu has temperate forests of deciduous trees (oak, chestnut, beech, ash, walnut, alder, maple, box), with conifers (pine, cypress) on the higher slopes. The forests of Hokkaido are mainly coniferous. Nearly half the forests of Japan are the property of the State or the Imperial House, and great attention is devoted to scientific forestry, in order to preserve one of the country's most valuable assets. The chief forest products are timber, firewood, charcoal, bamboo, soft wood for paper or matches, camphor and camphor-oil, mulberry-leaves for feeding silkworms, lacquer, and vegetable wax. It is important to observe, however, that the value of imported wood and pulp exceeds that of exported timber products.

Agriculture. With the abolition of the feudal system in 1871 the land passed from the possession of the *daimios* and became the property of the peasants. At present about three-fifths of the arable land is cultivated by peasant-proprietors, and the remainder by tenants who rent it from wealthy landowners. Only about one-seventh of the area of Japan is under cultivation, and as the great majority of the people are engaged in agriculture it follows that farms are very small, the average size being little more than two and a half acres. The arable area could not be very much increased.

Japanese agriculture resembles that of China in being highly intensive. There is very little natural pasturage on the mountains, and the lower lands are too valuable to be used for grazing. Hence there are comparatively few animals in Japan—1,530,000 oxen, 1,540,000 horses, 27,000 sheep, 220,000 goats, 926,000 pigs. Great Britain has 7,973,000 cattle, 1,034,000 horses, 24,183,000 sheep, and about 3,500,000 pigs. Hillsides in Japan are carefully terraced; it is a common practice to build walls

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on the slopes and carry up soil for the construction of the terrace. The rotation of crops is practised with great skill, so that a succession of crops may be obtained without impoverishing the soil, which is, of course, continuously fertilized with any manure available—human, animal, fish, or vegetable. Additional supplies of artificial manures—ammonium sulphate, Chile nitrate, and phosphates—are a considerable item of the import trade. The work of planting and harvesting, constant weeding, repeated manuring, and frequent irrigating is all done by hand, although most farmers have a single ox or horse to assist in ploughing and harrowing. Very few families can afford to keep more than one animal. Despite their hard work, many peasants find it difficult to make a good living, and it is usual to send away daughters to work in the cities, while the sons frequently try to secure employment in the industrial centres.

Rice is by far the most important crop, and occupies over half the area under cultivation. The bulk of the crop is grown in irrigated paddy-fields, the young plants being brought from the nursery beds in late May or early June and planted by hand in the sodden fields about a foot apart in rows. Weeding has to be done by wading in the warm, muddy water, slimy with manure, and the workers wrap their legs and feet in strips of cotton cloth to protect them from the swarming leeches. In early September the fields are drained, and the rice is harvested by cutting the stalks close to the ground with small sickles. The sheaves are carefully dried by hanging them on poles suspended between the trees, and in several days their colour slowly turns from bright green to pale brown. The grain is separated from the stalks by dragging them through a large steel comb. The rice is packed in large straw bags, and the rice-straw is stacked in small ricks. The straw has a variety of uses—for thatching houses, making straw rainproof capes, and weaving mats.

By adding to the acreage under rice and improving the

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methods of cultivation Japan has steadily increased the annual yield. It is nevertheless necessary to import additional supplies from Burma, French Indo-China, and China, although there is a small export of the best quality of Japanese rice. Large quantities of rice are used for manufacturing *sake*, the favourite fermented drink of Japan.

Of other cereal crops the most important are wheat, barley, and rye, but there has been a steady decrease in both acreage and yield of all three. In Northern Japan they are summer crops, but in the warmer south they are frequently sown as winter crops in the paddy-fields after the rice has been harvested. Millets and buckwheat are other crops that may follow the rice. Rye and barley are often mixed with rice or beans for use as food. The straw of the cereals is made into straw-plait for export to the hat-making centres of the United States and Western Europe.

Various kinds of beans (including the soya) and peas are important foods, the home crops being largely supplemented by importation, chiefly of soya-beans from Manchukuo. The soya-bean is used in making soups and bean-curd, both important articles of diet. Vegetables are widely grown as additional food crops, especially potatoes and sweet potatoes. Sweet potatoes are the chief food of those who are too poor to buy rice. Such fruits as plums, pears, grapes, peaches, oranges, cherries, and apples are common, although the autumn rains are not favourable for ripening, which requires plenty of dry, sunny weather. Salted plums are a favourite delicacy.

Green tea is grown on well-drained slopes in Honshiu, Kiushiu, and Shikoku, but the acreage and yield have declined in recent years. Tea is a very common beverage of the Japanese themselves, and there is a considerable export to the United States. Tobacco is another important crop, especially in the south, cultivation and manufacture being a Government monopoly.

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The acreage under mulberry-trees is as great as that devoted to wheat or rye, and the breeding of silkworms is one of the most important occupations. In general the industry is carried on by nearly every peasant-farmer to supplement his crop-raising, and all the family take part in the numerous processes, which require exceptional



FIG. 98. TEA-PICKING IN JAPAN

Note the terraced tea-gardens, and the sublime peak of Fuji-yama in the distance.

By courtesy of the Japanese Ambassador

care and skill. After the tiny eggs have been laid, each female moth laying about 500, both males and females are thrown to the chickens or dug into the ground as manure. The eggs are hatched after being kept on trays in a loft at a temperature of 64° F. for eleven months. The tiny silkworms are born with tremendous appetites. They have to be fed with chopped mulberry-leaves eight or nine times in twenty-four hours, and during their short life of seven weeks they burst their skins four times! For

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each pound of eggs hatched as much as ten tons of fresh young leaves will be eaten, these coming from between three and four hundred trees. When fully grown the worms spin their cocoons, and while they are sleeping they are covered with sheets of newspaper, perforated with holes, through which the new-born moths can emerge later on from the cocoons. There is now very little silk-reeling by hand: the cocoons are sold for reeling in the great modern factories. Raw silk, silk cloth, and waste silk together form the most valuable class of Japanese exports, Japan being easily the world's greatest silk-producer.

Maize, rape-seed (for oil), hemp (for string, thread, and cloth), rushes (for mats), sugar-cane (restricted to the warmest areas), and the paper-mulberry are other crops of note in Japan.

Fisheries. Japan has all the advantages for a great fishing industry—shallow coastal waters, abundant fish foods brought both by cold and warm currents, good supplies of timber for boats, many splendid harbours, skilful fishermen, and an excellent home market. Nearly 2,000,000 people are employed in the fishing industry. The majority of the 400,000 fishing-craft are small open boats, but steam-trawlers are increasingly used. In numbers of workers and value of products the fisheries rank very high among Japanese industries. Among the chief fish are herring, sardine, mackerel, cod, anchovy, tunny, bonito (similar to tunny), bream, cuttle-fish, lobster, prawn, squid, and octopus. The Japanese eat very little meat, milk, butter, or cheese, so that fish is very important to supplement the normal diet of rice and vegetable foods. The drying of fish and the making of fish-manure are important allied industries. *Bêche-de-mer* (or sea-cucumber) and sharks' fins are exported to China. Seaweed is dried for use in flavouring soup, fish, or rice, and some is made into isinglass, paper, and a kind of jelly. 'Culture pearls' are secured by inserting

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tiny grains of mother-of-pearl inside the shells of living oysters, which encircle each grain with a good-sized pearl in a period of about four years. There are deep-sea fisheries for seal and whale off Karafuto and in the Bering Sea.

Minerals. The distribution of minerals is shown in Fig. 99. Japan is by no means rich in minerals. In value of output coal is easily first, accounting for over half the total value of all mineral and metal products. Of many scattered coal deposits only two areas have any importance—one in Northern Kiushiu and the other in Southern Hokkaido. The four coalfields of Kiushiu are favourably situated near the coasts and relatively near the great industrial centres of the Inland Sea. The Japanese do not use coal as domestic fuel, so at first a busy export trade developed. But the demands of Japan's great modern industries drastically reduced the coal-export trade, and so made it necessary to import additional coal supplies from North China. Most of the Japanese coal is of poor quality, and the imported coal is mainly coking-coal for the iron and steel industries.

The petroleum supplies of North-west Honshiu are not of great value, and output is declining. Iron supplies are scattered, but of importance in only two areas—North-east Honshiu and South-west Hokkaido. In both cases there are iron- and steel-works. Japan is very poor in iron, and her great steel industry depends mainly on China for its raw materials. Other minerals of some importance are gold and silver (usually associated with copper), sulphur (from the volcanic regions), lead, antimony, mercury, and manganese. There is abundant kaolin, or china-clay, in Kiushiu and Southern Honshiu to supply the pottery industries. Salt is obtained by the evaporation of sea-water, especially along the shores of the Inland Sea. Copper is the most important mineral of Japan, both in quantity and quality, supplies being abundant and widespread. The copper is of great value

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in the development of hydro-electric power, which is one of Japan's greatest assets.

Manufacturing Industries. Modern industrial developments, employing machines in factories, first became

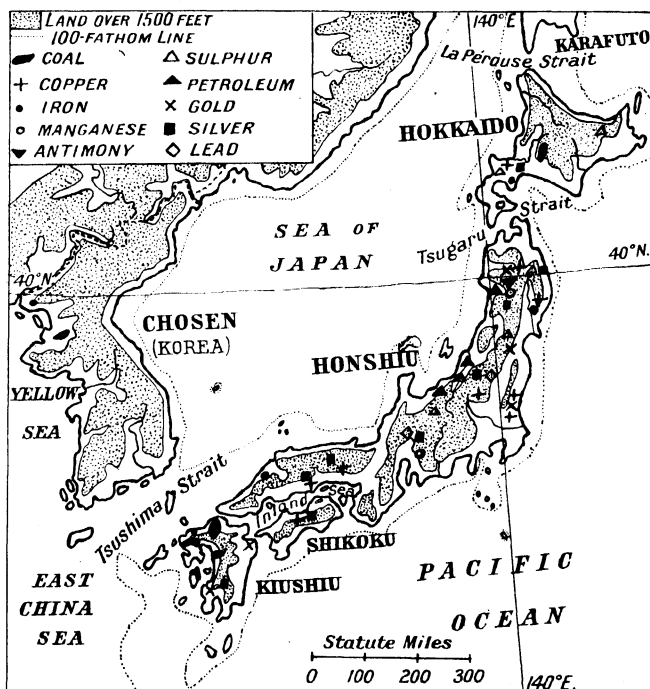


FIG. 99. RELIEF AND PRINCIPAL MINERALS OF JAPAN AND CHosen

important forty years ago, after the war with China in 1894-95, and there was considerable expansion of the chemical industries during the war with Russia in 1904-5. During the Great War Japan was not involved in fighting to any extent, but she was able to expand her industries to supply goods to her allies or to the markets in Asia and elsewhere that were of necessity neglected by the

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industrial nations deeply involved in the War. In recent years Japanese industrial progress has been remarkable, despite the general depression in world trade. Some of the results of Japanese competition have already been described (p. 370). It is, perhaps, necessary to emphasize the fact that the Westernization of Japan and the building



FIG. 100. SILK RE-REELING ROOM OF THE YOKOHAMA SILK-CONDITIONING HOUSE

A good example of the modern mills of Japan, well built, highly efficient.

By courtesy of the Japanese Ambassador

up of her great industries were the result of careful national planning and direction.

Silk. The highland core of Honshiu is the chief region for mulberry-trees, and the sheltered basin of Lake Suwa, at the foot of the Japanese Alps, is the great centre of silk production, the lake providing water for reeling the cocoons and the streams of the Alps water-power for lake-side factories. Silk manufacture is also carried on,

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often as an additional industry in cotton-mills, at a number of towns in the southern half of Honshiu—Nagoya, which has silk-reeling as its chief industry; Kyoto, which has twisting, weaving, bleaching, and dyeing, mainly as domestic industries; Kanazawa, Fukui, and Toyama, on the shores of the Sea of Japan; Kobe, the chief centre of the silk industry; Osaka; and Tokyo. Raw silk has long been one of the leading exports of Japan, mainly to the United States and Western Europe. Of the silk-tissues exported the chief is the thin 'Jap silk' which is rarely used in Japan itself. In recent years there have been very rapid developments in the manufacture of artificial silk, or rayon, and Japan has been successful in competing with Britain, the United States, and other rival producers. The raw material (usually wood-pulp, sawdust, or cotton waste) is reduced by chemical means to a cellulose jelly, and then forced through glass tubes of very fine bore to produce the rayon threads.

Cotton. The cotton industry, centred on Osaka, began with every advantage, though the home supply of cotton is almost negligible. The Inland Sea gives access to additional supplies of raw cotton from the United States, China, and India, and to China, India, and other markets for exported cotton goods; there is plenty of water for bleaching, dyeing, and printing; the area round Osaka has open ground for factory sites; coal, pig-iron, and raw materials for such industries as chemical manufacture can be cheaply imported through Kobe; and abundant hydro-electric power is available from Lake Biwa, near Kyoto. Raw cotton is by far the largest item in import values.

Wool. The manufacture of woollen goods is steadily growing in importance, and the importation of raw wool and woollen yarns now greatly exceeds in value that of woollen tissues. Australia, as the world's leading wool-producer, is naturally interested in the expansion of the Japanese woollen industry, and trade between the two countries will increase.

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The great textile industries ¹ are carried on in Southern Honshiu, and as the bulk of the workers are women and girls recruited from the farming districts it is the common practice for the factory-owners to provide living-quarters in connexion with the mills. The girls live in large wooden, barrack-like buildings, and feed in huge dining-halls. The factory usually has its own school, hospital, and sports ground, while the workers can buy food and other requirements (generally at cost price) from the factory shop. Despite the long hours (usually nine or ten) and low wages (perhaps 2s. 8d. per day for men and 1s. for women), the workers are generally content, and their standard of living is certainly superior to that of most peasant families in Japan. Many of the girls work just long enough to save a sufficient dowry to enable them to marry, and part of their wages may go towards the support of their relatives.

The value of woven goods far surpasses that of any other manufacture; but there are other manufacturing industries of importance. All the great centres of population have mills for rice, flour, bean-oil, and sugar, distilleries for making *sake* from rice, breweries for making beer from barley, and tanneries for dealing with local hides. Kaolin, or china-clay, is abundant, so that earthenware and porcelain are important manufactures. There are iron- and steel-works, aluminium-works, and zinc-works, all dependent in the main on imported ores. Nagasaki and Kobe have shipbuilding yards. Matting is made from rice-straw and from rushes; match-making for Eastern markets depends on suitable wood, sulphur from volcanic deposits, and cheap female labour; paper, used for partition walls, screens, umbrellas, and many other articles, is made from the wood-pulp of soft timber, and also from the inner bark of the paper-mulberry, from rice-straw, and from seaweed. Toys, fancy goods, soap,

¹ In 1932 there were 21,297 textile factories, employing nearly 1,000,000 workers.

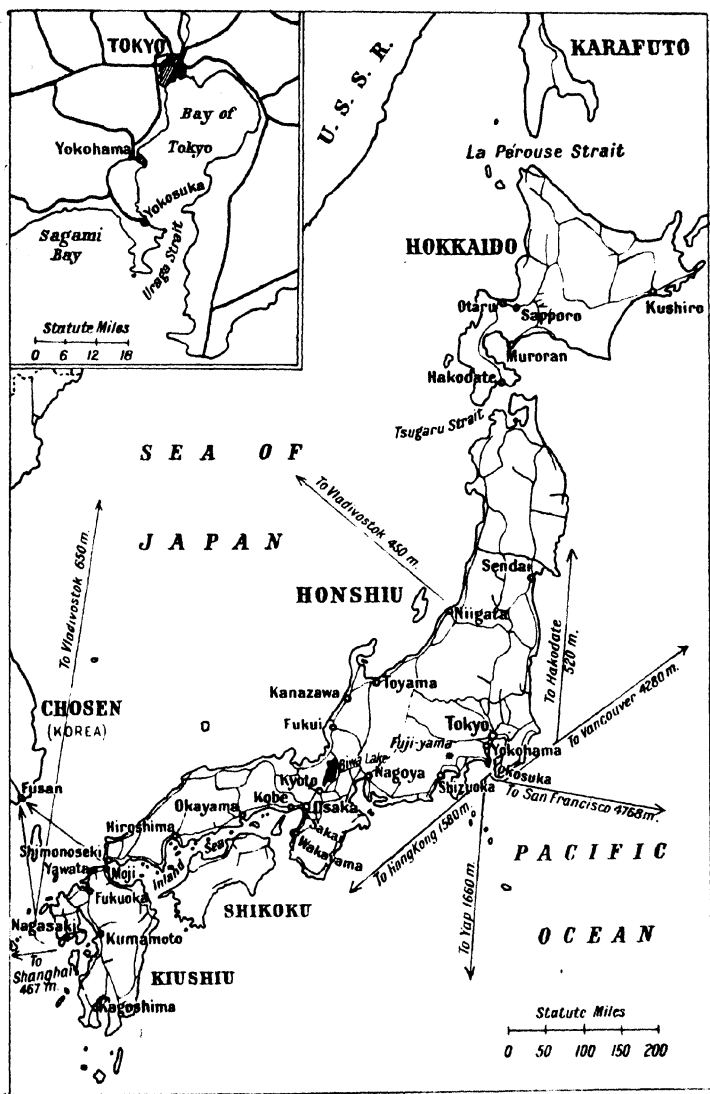


FIG. 101. RAILWAYS, SEA-ROUTES, AND TOWNS OF JAPAN

There are important sea-routes from Kobe to Yokohama (330 miles) and to Shanghai (778 miles). Note the inset map showing the positions of Tokyo and Yokohama.

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chemicals, glass, bicycles, motor-cars, and rubber are other industries of recent growth. Paper, straw-plait, and brushes are still mainly domestic industries.

Present and future industrial developments in Japan are mainly dependent on hydro-electric power, and fortunately the heavy rainfall and the mountainous character of the country combine to give swift streams with reliable flow. It has been estimated that the average power available throughout the year is nearly 12,000,000 h.p.—more than half that of the whole of Canada. The chief Japanese power schemes are naturally in operation in the southern half of Honshiu, the region of greatest industrial development. The electricity is widely used for domestic and agricultural purposes, as well as for industry and transport.

Communications. Over the greater part of Honshiu the mountains run north and south, so that movement is easy along the coasts and between the ranges. In Southern Honshiu the ranges trend east and west, and the easiest routes are along the south coast.

The first railway in Japan was built in 1872 to link Tokyo and Yokohama, a distance of eighteen miles. The total mileage to-day is nearly 14,000 (Great Britain has over 20,000 miles), and more than two-thirds is State-owned. The Japanese gauge is 3 feet 6 inches, but this is being converted to the standard British gauge of 4 feet 8½ inches, the change to be completed by 1943. Electric traction is being introduced, and more than one-seventh of the railway mileage has already been electrified. The main railways connect all the chief centres of Honshiu, and by a tunnel under the mile-wide strait between Shimonoseki and Moji there is direct connexion with Kiushiu. Japan has also excellent modern systems of roadways, postal, telegraph, and telephone services, and air traffic.

The excellent seamanship of the Japanese and the expansion of their overseas trade are reflected in their merchant-fleet, which in 1933 ranked next in tonnage to

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Britain and the United States, though considerably less than either of those States. The Japanese Government subsidizes shipping companies for foreign trade, and their vessels run on four great routes to Europe, North America,

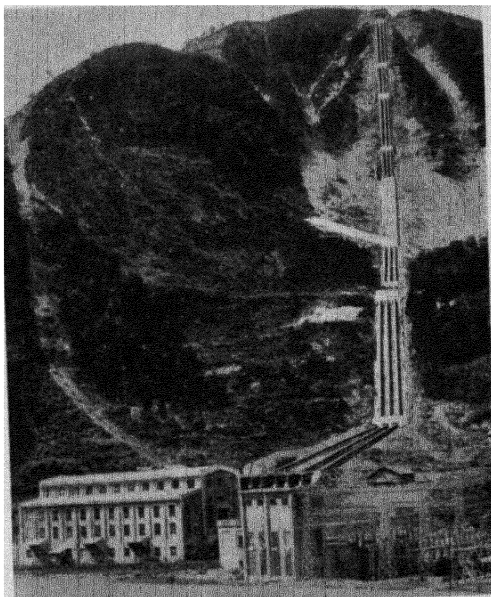


FIG. 102. HYDRO-ELECTRIC POWER-STATION IN HONSHU

The pipes bring the water down from a great height to turn the large turbines at the mountain-foot, and thus drive dynamos for the generation of electricity.

By courtesy of the Japanese Ambassador

South America, and Australia. There is also a considerable volume of shipping between Japanese ports and Chosen, Northern China, and the Yang-tse-kiang.

Foreign Trade. Raw cotton is the most valuable import of Japan. Other imports of note are wool and woollen yarns, iron goods and machinery, oil-cake, beans, and

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peas, wood, wheat, coal, fertilizers, and sugar. The leading exports are raw silk and silk goods, cotton goods, paper, pottery, refined sugar, coal, and marine products. The imports are mainly from the United States, British India, Australia, China, Germany, Britain, and the Dutch East Indies. Japanese exports go chiefly to the United States, China, British India, the Dutch East Indies, and Britain. The United States alone supply more than one-third of the imports and take nearly one-fifth of the exports of Japan.

Chief Towns. The severe winters of Hokkaido explain the slowness of Japanese settlement in the island; but there are several large towns dependent upon the development of the natural resources—timber, coal, iron, agriculture, and fisheries. Sapporo (169,000), the capital, is a modern city built in the heart of the Ishikari plain, the principal agricultural area, with its crops of peas, beans, potatoes, oats, barley, maize, buckwheat, and millet and its stock-raising. Railways link Sapporo with Otaru (145,000), the port for the Ishikari plain, and with other parts of the island. Muroran, on Volcano Bay, exports coal and wood-pulp and has both iron- and steel-works; Kushiro, in the east, exports forest products. Hakodate (197,000), the largest town in Hokkaido, stands in the extreme south, on Tsugaru Strait. It has a splendid harbour, and exports coal, timber, sulphur, beans, and potatoes. On March 21, 1934, four-fifths of Hakodate were destroyed by fire.

The island of Shikoku, which is smaller than Wales, is devoted to such crops as rice and tea, and it has important copper-mines; but there are no large towns of any note.

Kiushiu, which is twice the size of Shikoku, is much more important industrially, largely owing to its coalfields, and it has several very important towns. Kumamoto (164,000), on the west coast, and Kagoshima (137,000), on a beautiful bay in the south, are the chief centres for

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agricultural products—rice, potatoes, sweet potatoes, and the *daikon* (giant radish), a favourite delicacy which is pickled in rice-bran water and salt. Kagoshima has lacquerware and pottery industries. Fukuoka (228,000), an important coal-port, Yawata (168,000), with its great Government steel-works, and Moji (108,000), the chief coal-port, have industries dependent on the local coalfield and imported iron ores. Moji, from its commanding position at the entrance to the Inland Sea, is called the Gibraltar of Japan. Nagasaki (205,000), on the finest harbour in Japan, is the chief port for China and Taiwan, and has important shipbuilding and repairing yards. Fish and coal are exported, and there are pottery and other industries. Nagasaki, however, is away from the great industrial centres of the Inland Sea, and its importance is diminishing.

Honshiu, the largest island, contains the bulk of the Japanese people, and has many large cities, especially in the south. Niigata (125,000), the chief port on the Sea of Japan, facing Vladivostok (450 miles away), is a petroleum port and rice-market, but suffers from exposure to heavy seas in winter, when the strong north-west monsoon blows. Kanazawa (157,000), lying farther south, is the largest city on the west coast of Honshiu, and has an important silk industry. On the extreme south-west of Honshiu stands Shimonoseki (100,000), a packet-station for Fusan, in Chosen, which is directly linked with the Trans-Siberian Railway. Sendai (190,000) is the chief port of North-east Honshiu, standing on a large bay studded with beautiful wooded islands. Sendai is the outlet for a region rich in copper, silver, gold, iron, slate, and salt, and has valuable salmon fisheries.

All the other towns of note in Honshiu lie on or near the south coast, a region containing the sites of the sixty capital cities of Japan. In accordance with an ancient custom each emperor was expected to build a new capital, so that no one city should become overwhelmingly

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important. Most of the capitals were located between Lake Biwa and the Inland Sea, and here stands Kyoto (1,053,000), which was permitted to endure as the capital city from A.D. 794 until the revolution of 1868. Kyoto ('Western Capital') is a charming old Japanese city, built upon and encircled by hills, scarcely affected by European influences. It is the centre of the fine old Japanese arts and crafts, producing by hand-labour (for no factories are allowed in the city itself) porcelain, fans, and articles of bronze and lacquer—all of exquisite beauty. Kyoto lies in the chief tea district, and has home industries of silk-twisting and -weaving, dyeing, bleaching, and calico-printing. During the long period when Kyoto was the capital it had as its port Osaka, which in recent years has become the second largest city in Japan.

Osaka (2,723,000) was deliberately selected for the development of a great cotton industry. The numerous advantages of Osaka have already been pointed out (p. 385). Much of the trade passes through Kobe, but the harbour of Osaka itself has been deepened to permit tramp-steamers to sail direct for Shanghai and the Yangtse. Osaka stands at the mouth of the Yodo river, and its many canals have made it the Venice of Japan. As the greatest industrial centre in Japan it is typically Western in its smoke, dirt, smells, slums, and great buildings. Osaka is the Manchester and Birmingham of Japan; its industries include cotton, silk, wool, iron and steel, machinery, electrical apparatus, cutlery, glass, chemicals, sugar-refining, and shipbuilding.

Kobe (854,000), with the finest harbour on the Inland Sea, is the great port for Osaka, importing huge quantities of cotton from the United States and India, wool from Australia, and iron from China. Kobe exports manufactured goods, rice, tea, and porcelain, and has an important shipbuilding industry. But owing to the restricted space between the coast and the mountains its other industries (matches, textiles, steel, and rubber) are

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carried on mainly in small factories. There are several other industrial centres near Osaka. Sakai (120,000) and Wakayama (117,000), to the south of Osaka, have similar industries. Okayama (139,000), due west of Kobe, is in a copper district. The pure local water is used in dyeing the fine-quality rush matting made in Okayama. Hiroshima (296,000), still farther west on the Inland Sea, also makes rush matting.

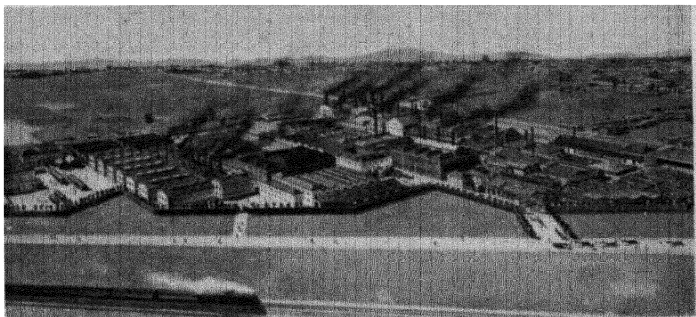


FIG. 103. POTTERY FACTORY AT NAGOYA, JAPAN

By courtesy of the Japanese Ambassador

East of Osaka, beyond Lake Biwa, lies a fertile plain producing rice, with room for industrial development. The great city of this plain is Nagoya (1,018,000), standing at the head of the huge Ise Bay. Nagoya has important industries of silk, artificial silk, cotton, wool, paper, and matches, but its leading industry is porcelain, based upon the great wealth of china-clay in the district. On Suruga Bay, east of Ise Bay, stands Shizuoka (136,000), with paper and cardboard manufactures, aided by the pure local water.

The greatest plain in Japan is in South-east Honshiu, and here stands the modern capital, Tokyo (5,663,000). The city was originally a fishing village called Yedo ('Estuary Gate'), but as capital of modern Japan its name

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was changed to Tokyo—'Eastern Capital.' Tokyo stands at the mouth of the Sumida, a river navigable for fifty miles through the great plain, although the estuary has silted up. Tokyo is the focus of important roads and railways, the centre of government, and the commercial headquarters of all the great Japanese industries. Its university played a prominent part in the Westernization



TO THE TOKYO STATION

Modern Tokyo closely resembles the cities of Europe and North America.

By the Ambassador

of Japan. Tokyo still has many lightly built houses of wood, bamboo, and paper, intended to survive the frequent earthquake shocks, but the city is very Western in its hotels, shops, factories, banks, business offices, and electric trams. Tokyo and its port, Yokohama, to which it is joined by electric railway, have all the industrial advantages of Osaka and Kobe, but liability to volcanic and earthquake disasters has discouraged large buildings, and the industries—textiles, shoes, electrical apparatus, machinery, porcelain, lacquer, enamel, matches, chemicals, toys, and carved ivory—are carried on mainly in small workshops.

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Yokohama (704,000) has been rapidly rebuilt since its destruction by earthquake and fire in 1923. It stands on the fine harbour of Tokyo Bay, and as the first port of call for trans-Pacific liners it attracts much shipping from India and the west *via* Hong Kong, and consequently has a great entrepôt trade. Of many exports silk is the chief. At the entrance to Tokyo Bay, protecting the approach to Yokohama and Tokyo, stands the naval station of Yokosuka (110,000).

JAPANESE POSSESSIONS

Karafuto. Under the Treaty of Portsmouth,¹ 1905, Russia ceded to Japan the southern part of Karafuto, or Sakhalin. Japanese Karafuto has an area of 13,935 square miles, with a population of about 300,000, of whom the great majority are Japanese. The aborigines are declining in numbers. Japanese Karafuto lies south of 50° N.—the latitude of the Lizard, England's most southerly point—yet its climate is of an extreme continental type. Winters are severe, with heavy snows lingering even on the lowlands until the end of May. In summer the east coast is chilled by the Kurile Current and by ice from the Sea of Okhotsk. The mountains (3000–4000 feet) are clad with extensive forests of larch and fir; coal and alluvial gold are the chief minerals. At present the most important industry is the herring fishery, but large areas are fit for agriculture and pasturage, and Japanese settlers are provided with seed and domestic animals. The severe winters, however, discourage immigration.

The *Chishima* ('*Thousand*² *Isles*'), or *Kurile* ('*Smoky*'), *Islands*, an arc of volcanic islands stretching from Hokkaido to Kamchatka, were obtained from Russia in 1875. They guard the approach to La Pérouse Strait, between Karafuto and Hokkaido.

¹ Portsmouth, New Hampshire, United States.

² There are actually only twenty-seven.

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The *Riu-kiu Islands*, taken from China in 1876, are a similar volcanic arc stretching from Kiushiu to Taiwan.

Taiwan. The island of Taiwan, or Formosa, ceded to Japan by China in 1895, has about the same area as Japanese Karafuto, but its population of 4,593,000 is much greater. Taiwan has a backbone of lofty mountains,



FIG. 105. TIMBER RAFT ON A RIVER IN KARAFUTO
Scenes reminiscent of the Canadian forests are now common in Karafuto.

By courtesy of the Japanese Ambassador

rising to 14,000 feet. The climate is monsoonal, but naturally much warmer than that of Japan, and extremely wet. The southern part has most rain in summer, from the south-east monsoon; while the northern part has most rain in winter, from the north-east monsoon. The natural vegetation is tropical forests, with such trees as camphor, banyan, and areca-palm and many bamboos. With increasing altitude on the mountain-slopes the forests change to deciduous, then to coniferous, trees.

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There is a very marked contrast between the eastern and western halves of Taiwan. The eastern half is a region of rugged mountains and dense forests, inhabited by aboriginal Malay tribes, those of the north-east being

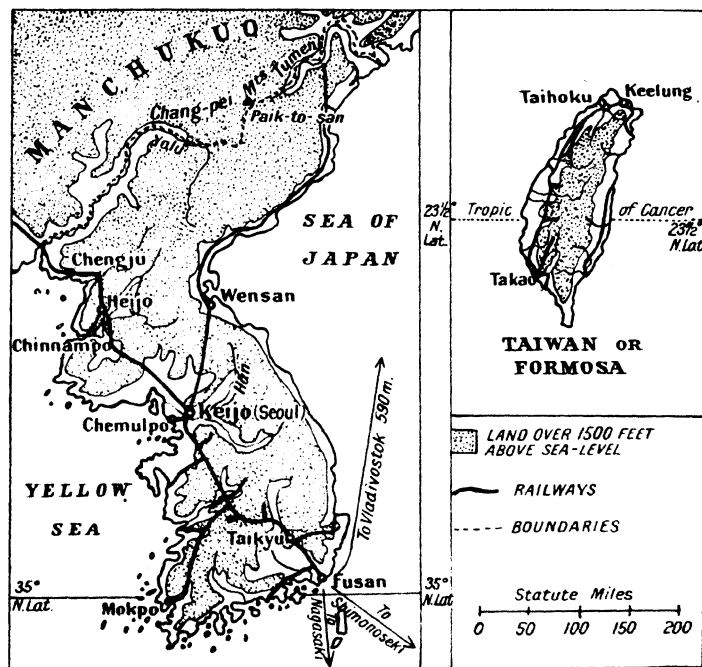


FIG. 106. CHOSŌN AND TAIWAN

Drawn on the same scale. Note their difference in latitude.

savage head-hunters, although the civilizing influences of the Japanese are steadily extending. The native area is separated from the western half of the island by a carefully guarded frontier-zone, with electrically charged barbed-wire fences.

The greatest developments in Taiwan have occurred in the western half of the island, and to a lesser degree

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along the east coast. Under Japanese administration production and prosperity have increased. A colonizing scheme was begun in 1909, but after twenty years there were only 221,000 Japanese in Taiwan¹: successful colonization must inevitably be slow. Japanese is the official language, but the Amoy dialect of Chinese is the most used. Many schools have been established for Japanese and natives, and a university was opened in 1928.

The great resources of Taiwan are agriculture, forests, fisheries, and minerals. It is significant that fertilizers are the most valuable importation. Rice is by far the most important crop, and as there is a considerable surplus above local requirements it is the most valuable export, mainly to Japan. 'Oolong' tea, renowned for its delicate flavour, is the second most valuable export. Sugar production has rapidly increased, and a number of large modern refineries are at work. This also is of importance to Japan, which cannot grow enough sugar at home. Sweet potatoes are a staple food of the natives and the raw material for making alcohol, an important export. Other crops of importance are ground-nuts, valuable for their oil; beans; tobacco; ramie, used for textiles, ropes, and cordage; jute, flax, and hemp; turmeric, a plant with fleshy roots which yield a yellow powder used in making curry-powder and yellow dye; and fruits—orange, banana, pineapple. The chief animals of Taiwan are pigs, buffaloes, cattle, and goats. Camphor and camphor-oil are valuable exports from the forests. To prevent rapid destruction of the camphor-trees the industry has been a Government monopoly since 1899.

Fisheries and mines both furnish valuable products. The chief minerals are coal, mined near Keelung, in the north, gold, copper, and silver. Among many growing manufactures there are flour-milling, sugar-refining, iron-work, glass, bricks, and soap. Salt, another Government

¹ In 1931 there were 244,000.

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monopoly, is obtained by evaporation from sea-water, and is exported to Japan.

The main railway runs along the western plain between Keelung and Takao, two ports with artificial harbours which handle the bulk of the foreign trade. There is another railway on the east, besides many light railways on the plantations, and new roads are under construction. The greater part of both export and import trade is naturally with Japan. Taihoku (230,000) is the capital and largest town.

Bokoto, or the *Pescadores*, are a group of about twelve small sandstone islands lying west of Taiwan. The few inhabitants depend mainly on fishing.

Chosen, or Korea. Korea has three great neighbours—China, Russia, and Japan—and its history has been that of a typical buffer State. For centuries Korea was more or less dominated by China; but in modern times Japanese influence steadily developed, and the war of 1894–95 was mainly due to the Chinese refusal to co-operate with the Japanese in subduing a rebellion in Korea. Japan defeated China, and insisted upon the absolute independence of Korea. The Russian penetration of Manchuria and the development of Vladivostok as a naval base appeared to threaten Korea, and the resulting antagonisms of Russia and Japan led to the war of 1904–5, in which Japan was the victor. The close proximity of Korea gave Japan some justification for her claim to control the political and military affairs of the peninsula. Five years later (1910), by a treaty between Japan and Korea, the Korean peninsula was annexed to the Japanese Empire, and the old name of Chosen ('Calm-dawn-land') was restored. Since 1919 Chosen has been treated as an integral part of Japan, and the inhabitants are on an equal footing with the Japanese. A Governor-General is responsible for the government of the country. The Japanese have successfully developed the economic resources of Chosen and greatly enhanced the material

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prosperity of its people. More than three-fifths of the Koreans are illiterate, but the Japanese are establishing schools in all parts of the country.

Chosen is about the same size as Honshiu or Great Britain. Its population of 20,600,000 is roughly half that of Britain, and consists largely of Koreans. It is again worthy of note that despite Japanese control and nearness to Japan there are only 523,000 Japanese in the country, and half of these live in towns.

The northern boundary of Chosen is formed by the Yalu and Tumen rivers and part of the Chang-pei Mountains, from which they flow. The northern section of Chosen is a plateau covered with lava-flows from the crater of the Paik-to-san. The long peninsula has a backbone of granite mountains near the east coast, where there are few harbours, while a number of long rivers flow through broad plains to the Yellow Sea. The Han river is navigable for 150 miles. The west and south coasts are very indented and have a number of good harbours: the tides on the west coast are commonly as much as thirty feet. The numerous creeks and islands of the south coast and the meeting of warm and cold currents result in an abundance of fish, and the fisheries are growing in importance. Whale-fishing is carried on along the east coast. About five-sixths of the country is mountainous, and probably only one-tenth is cultivable lowland, although its soils of mixed lava and alluvium are extremely fertile.

The climate of Chosen is naturally of monsoon type. The north resembles Manchukuo and North China in having severe winters, while the south, with its greater exposure to sea influences, resembles Honshiu. The winter is everywhere cold for the latitude, owing to frequent icy gales. The rainy season is summer, and the hot, humid atmosphere is very trying. Forests, largely deciduous in the south and coniferous in the north, once covered the greater part of the country, but reckless destruction

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(mainly for fuel) has cleared most of the mountains, and the forests have survived only in the north, where timber can be cheaply transported to the sea by the Yalu and Tumen rivers. The forests remaining are under Government control. At the present time it is found necessary to import timber in the south.



FIG. 107. NATIVE MARKET IN CHOSEN

By courtesy of the Japanese Ambassador

Chosen is almost entirely an agricultural country. The average farm of a Korean family is less than four acres, but the average Japanese holding in Chosen is over fifty acres. Hence, despite their small numbers, the Japanese settlers own nearly 7 per cent. of the cultivated land. Rice, covering about 33 per cent. of the cultivated area, is the chief crop, and it furnishes a large surplus for export to Japan. Other agricultural products of importance are soya and other beans; barley, wheat, and millet;

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tobacco; fruits (principally apples and pears); cotton (chiefly the American upland variety); and ginseng, a root favoured by the Chinese as a medicine. Silkworm-rearing is carried on. Cattle, of excellent size and quality, and pigs are the chief animals, the livestock industry being a by-product of agriculture. The development of stock-raising is obviously of importance to Japan.

The mineral wealth of Chosen appears to be considerable, but cannot be fully exploited until communications have been improved. There are relatively small amounts of coal, the most valuable being the anthracite of the north, near Heijo; and the largest deposits of iron ore occur farther north, behind Chengju. Gold, copper, graphite, and mica are other minerals of value.

The chief industries of Chosen naturally depend upon the raw materials available, and include rice-milling; tobacco manufacture; soy-making from soya-beans, rice, and wheat; *sake*-distilling; saw-milling; tanning; weaving, which is still mainly a domestic industry; and brick-making. The leading exports are rice, silk and cocoons, beans, cattle, hides, and gold ore. The chief imports are cotton goods, fertilizers, machinery, silk goods, coal, mineral oil, sugar, timber, paper, flour, and grass cloth. Practically all the export trade and about three-quarters of the import trade are carried on with Japan.

Rivers, oxen, and pack-horses, the oldest forms of transport in Chosen, are still important; but railways are being rapidly extended, and roads are being gradually improved for the increasing motor traffic. There are 1823 miles of railways, all connected with the South Manchukuo Railway, and 12,900 miles of roads.

Towns. Keijo, or Seoul, the capital, has a population of 375,000, including 105,000 Japanese. It is centrally situated in the Han valley, on the main line from Fusan to Fengtien, and other railways link it with its two ports Chemulpo ¹ (68,000), on the west coast, and Wensan (or

¹ Chemulpo = 'Muddy Harbour.'

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Gensan), on the north-east coast. Heijo (145,000), in the north-west, and Taikyū (104,000), in the south-east, are other important towns on the main railway. Both are old towns, and Taikyū has a great annual fair. Chinampo, south-west of Heijo, is a modern port dependent on the mineral wealth of its hinterland. Fusan (148,000) has grown rapidly as the great modern port of Chosen, handling the bulk of all trade. It is the terminus of the railway from Fengtien, and from its sheltered harbour shipping routes go to Japan. The passage to Shimonoseki, 120 miles, is the shortest route between Japan and the mainland of Asia.

Japanese Mandates. Under the Treaty of Versailles at the end of the Great War Japan was entrusted with the government of the former German Pacific possessions north of the equator. These are three groups of islands—the Marianne (or Ladrone) Islands, excluding the United States island of Guam, the Caroline Islands, and the Marshall Islands. Japan has left the League of Nations, but she still continues to administer these islands.

EXERCISES

1. "Japan is the Britain of the East." To what extent is this true?
2. Describe the voyage of a tramp steamer from Liverpool to Yokohama, mentioning probable routes, ports of call, and goods carried.
3. Compare the textile trades of Japan with those of Great Britain.
4. Draw sketch-maps to show the importance of (a) Osaka and Kobe, (b) Nagasaki, (c) Hakodate.
5. Describe the resources of Japan for carrying on large-scale manufacturing industries, and indicate the sources of additional imported raw materials.
6. Estimate the value to Japan of Chosen, Taiwan, and Karafuto as sources of commodities and as colonies for settlement.
7. Draw a map to illustrate the account of the climate of Japan given in this chapter.

CHAPTER XV

AUSTRALIA

AUSTRALIA is geographically one of the oldest lands, but it is the home of one of the youngest nations. The peculiarities of its animals and plants bear witness to its long isolation from the rest of the world. Being an island, and lying far to the south of the great sea highways to the East Indies, both the Portuguese route round the Cape of Good Hope and the Spanish route from the Pacific, it remained neglected, in spite of early Dutch pioneers, till in 1788 the first settlers planted the Union Jack on the shores of Port Jackson.

But for a long time the steep escarpment of the Blue Mountains proved as great an obstacle as the Appalachians did in North America. By 1850 the whole eastern coast, the southern plains, and the coastal plain of the west coast had been explored. As in Africa, the high desert in the west and the type of river discouraged penetration. But the vital factor was, and still is, the rainfall. Experience proves that close settlement needs a rainfall of not less than 15 inches. Nearly half of Australia gets less than this. Irrigation can do, and has already done, much, but sheep-pasturing is the only occupation (apart from the special case of gold-mining) that can be followed inside this area, and the 10-inch isohyet practically marks the limit of that.

The area of Australia is nearly as great as that of the United States, is four-fifths that of Canada, and three-quarters that of all Europe. The population of the continent is now about 6,706,000. This is about the same as that of the United States a century and a quarter ago. Nearly half of the total population is to be found in the six largest cities of the Commonwealth. Ninety per cent.

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of the population of the United States to-day lives in the eastern half of that country, where the rainfall is over 20 inches. In Australia the area so blessed is much less, and much of it is tropical, where the suitable crops are cotton, rice, and sugar. These require labour at low cost, such as coloured races provide. The only natives in

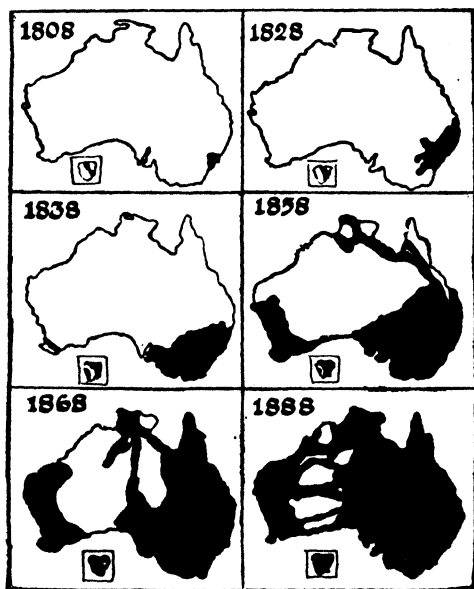


FIG. 108. PROGRESS OF AUSTRALIAN EXPLORATION

Australia are the aboriginals (about 60,000, but diminishing), and they are a very primitive type, leading a nomadic life and not inclined to settled occupations. Australia has firmly decided to exclude all coloured immigrants, and even other non-British peoples, so that the aboriginals and the Chinese, Japanese, and Europeans other than British (chiefly German) already in the country number together only 250,000. Thus, 96 per cent. of the Australian

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people are of British stock, and the small proportion of other Europeans are strongly Australian in sentiment. Australia is therefore almost free of the problem that is found in Africa, of native races. It has the advantage of being under one Government—the Commonwealth—set up in 1901, and the physical and climatic features of this

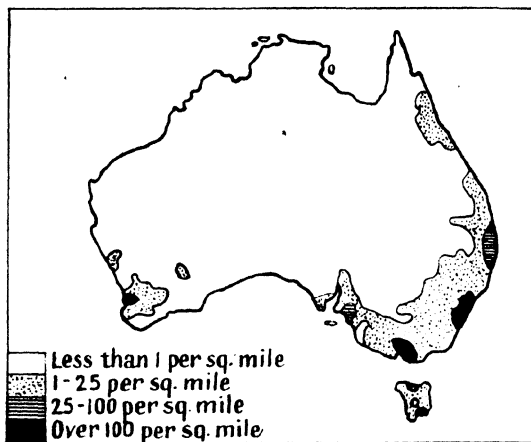


FIG. 109. DENSITY OF POPULATION OF AUSTRALIA
The localities of the chief towns may be easily identified.

island continent enable it to be treated much more as a unit than any of the other continents,

PHYSICAL FEATURES

The three simple physical divisions of the continent are:

(1) The western half of the continent—a plateau of ancient crystalline and sedimentary rocks mostly about 1200 feet high and highest along the centre, where it rises to over 4000 feet. It generally slopes down steeply to a narrow coastal plain.

(2) The central lowlands, where the underlying rocks

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are younger and softer, being of Cretaceous and Triassic age, with great areas of alluvium. They consist of (a) the Lake Eyre basin (where the lowlands are nearly 1000 miles wide), (b) the Murray-Darling basin, and (c) the lowlands round the Gulf of Carpentaria.

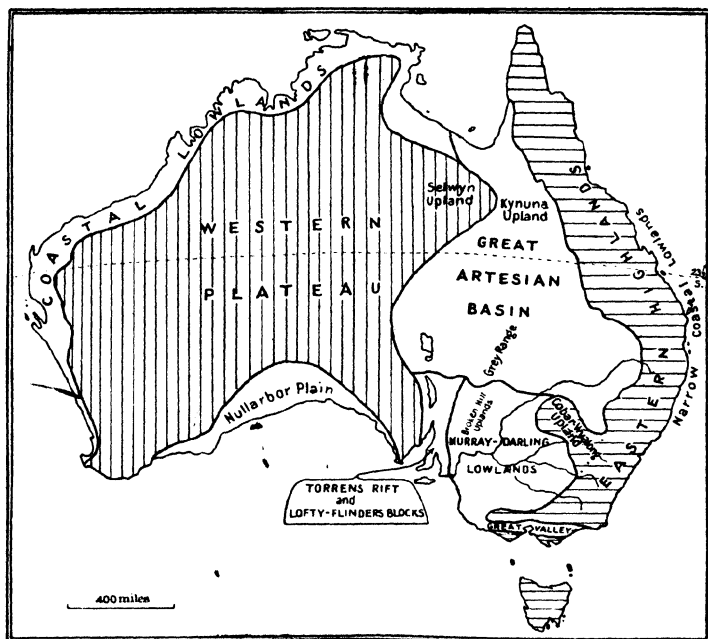


FIG. 110. GENERALIZED STRUCTURAL DIVISIONS OF AUSTRALIA

(3) The eastern highlands, largely composed of Carboniferous and igneous rocks. The main divisions are (a) the Bellenden Ker Range of North Queensland (over 5000 feet), (b) the New England Range and Blue Mountains of New South Wales, (c) the Australian Alps of the south, with Mount Kosciusko (7328 feet), and (d) the mountains of Tasmania.

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CLIMATE

The northern part of Australia has a monsoon climate, for when it is winter over South-east Asia the sun is overhead in North Australia. When, therefore, the winds are outflowing from Asia they are moving inward in Australia, to the low-pressure system over the heated desert. Conversely, in the Australian winter the winds are outflowing and dry, while in Asia, where it is summer, they are inflowing and wet. The summer monsoon rains reach far to the south over the lowland plains, but rainfall diminishes rapidly from the coast inland. The centre and west of the continent receive rain only occasionally, and then in the form of heavy thunderstorms, which are often destructive. The south coast is mainly dry in summer, but in winter receives rains from depressions associated with the low pressure of the Southern Ocean. These particularly affect the south-east.

Along the east coast, where the highlands lie transversely in the track of the south-east trade-winds, abundant rain falls. Here too the quantity diminishes steadily inland, for trade-winds are dry winds unless cooled by forced ascent. Thus, rain is confined chiefly to the north, east, and south coasts, the north receiving summer monsoon rains, the east rain at all seasons, with a maximum in summer or autumn, and the south winter rains. The west coast gets little, except south of Perth, where the westerlies strike it in winter.

Comparing Australia with Southern Africa, we must note that (a) the area of winter rains is larger in Australia and the rainfall more. In South Africa winter rains are confined to the south-west area from north of the Cape-town peninsula to Port Elizabeth. In Australia adequate winter rains occur in the area south-west of a line joining Geraldton to Albany, some light though reliable rain along a narrow strip of the coast of the Great Australian Bight and in South-east Australia—*i.e.*, a great part of Victoria

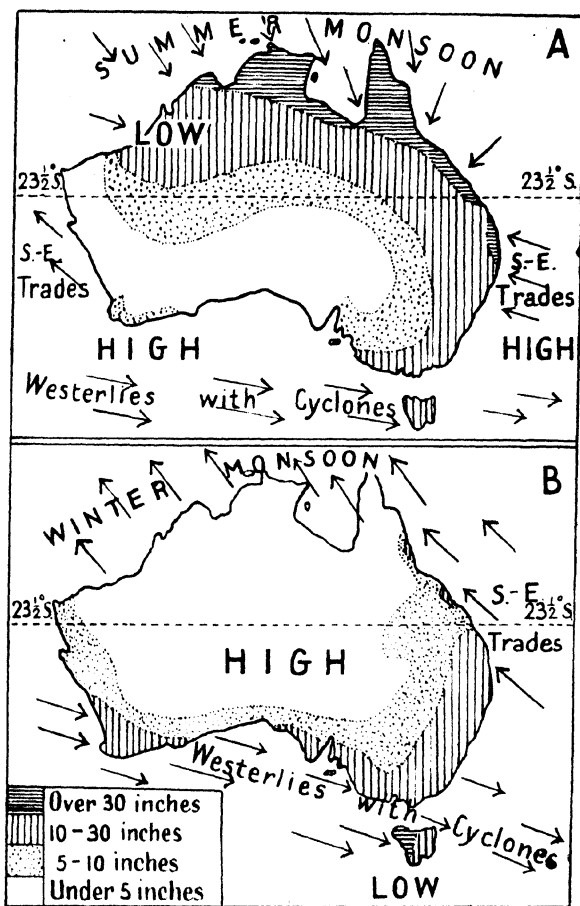


FIG. 111. MEAN ANNUAL RAINFALL OF AUSTRALIA

A, mean summer rainfall (November to April inclusive); B, mean winter rainfall (May to October inclusive). Pressure distribution is indicated as high or low.

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and the whole of Tasmania. Thus, both Capetown and Perth receive 18 inches in the winter months of June to August, but Perth gets 10 inches more in the year. (b) In the trade-wind area the rainfall is heavier in Australia than in Africa. Thus, Aliwal North (30° S. 27° E., altitude 4300 feet), in South Africa, receives 26 inches annually, nearly half in summer, while Tenterfield, in Australia (29° S. 152° E., altitude 2800 feet), gets 31 inches, of which only one-third falls in summer. But rainfall decreases inland more rapidly in Australia; thus, Mafeking (Africa) has 30 inches, while Bourke has only 15 inches.

The north of Australia is equable, but rather hot (over 70° F.) throughout the year; the south is cool in winter, with snow on the eastern mountains, and warm in summer; the interior has both daily and annual extremes, but these extremes are less than those of North Asia or North America. In summer the hottest part (over 90° F.) is in the western desert; along the south coast temperatures are about 70° F. In winter the average temperature of the south and south-east is about 50° F. Isotherms for intervening temperatures during both summer and winter curve roughly parallel to the coasts.

NATURAL REGIONS

The combination of relief and climatic features enables us to distinguish 'natural' regions in which conditions of life vary in accordance with natural resources. These regions range themselves more or less concentrically round the dry interior as follows: (1) The arid region of the centre and west; (2) the savanna and steppe belt; (3) the tropical forest belt of the north and north-east coasts; (4) the south-eastern highlands and coast; and (5) the southern regions of winter rains.

(1) **The Arid Region.** This stretches from the west coast at the tropic for 1000 miles to the east, and extends for about half that distance towards the south coast, and

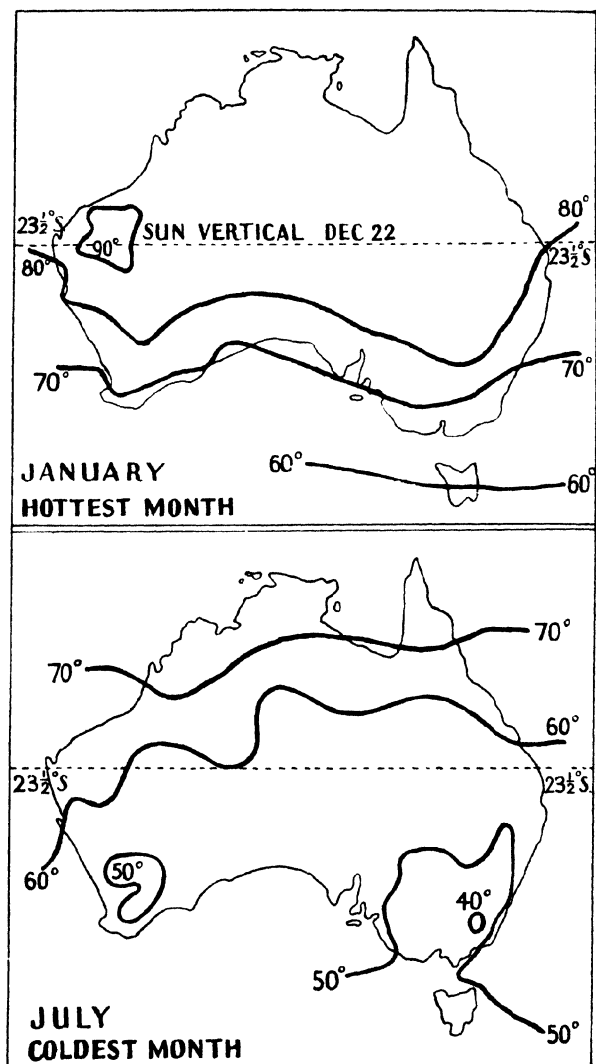


FIG. 112. MEAN SEA-LEVEL ISOTHERMS OF AUSTRALIA
Isotherms in degrees Fahrenheit.

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therefore covers half the continent. It was naturally the last to be explored, most of it not till within the last half-century. Isolated hummocks of spinifex diversify a waste of sand and rocky ridges. Unlike the Sahara, there are no oases, though wells have been sunk which yield a limited and uncertain supply of water. The Macdonnell Ranges collect some rain, which finds its way to Lake Eyre. But 'Lake' Amadeus is merely a bed of salt. Around the edges between the desert and the grasslands, where rainfall averages 10 inches a year or more, salt bush, acacia (mulga), and prickly grasses grow. The whole region is one formed of very old, hard rocks, schists, and gneiss planed down through the ages, mainly through wind erosion. In certain areas, however, valuable minerals are found; for example, around Kalgoorlie.

(2) **Savanna and Steppe.** To the north around this arid region is a semicircular belt of savanna land and steppe. (a) West of Cambridge Gulf the savanna land extends to the coast. Eastward, however, the coastal area is clothed with tropical forest, and the edge of the savanna belt follows the coast at a distance roughly parallel to it of about 100 miles. Rainfall increases outward from 10 to 50 inches on the coasts, and falls in summer. The average temperature is always over 60° F. These are typical savanna conditions (*cf.* Sudan). On the coastal side of the savanna in the north thorn-woods and plantations of acacias and eucalyptus become more numerous. Successful agriculture is not yet possible. The only industries, therefore, are gold-mining, as in the Kimberley district, cattle-rearing along the upper river valleys (Victoria, Daly, and Roper rivers), and collecting pearls along the coast. The northern half of the central lowlands is included in the savanna belt. The higher temperature and heavier rainfall towards the Gulf of Carpentaria provide pasture for millions of cattle and sheep. This too is the largest of the artesian areas in Australia. (See Fig. 117.)

(b) On the lowlands drained by the Darling and its

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tributaries the grasslands have more the character of steppe. The area is mainly devoted to sheep pasture, but cattle are grazed nearer the moister highlands, and wheat is grown under irrigation near the Darling Downs.

The lower basin of the Murray-Darling is shut in

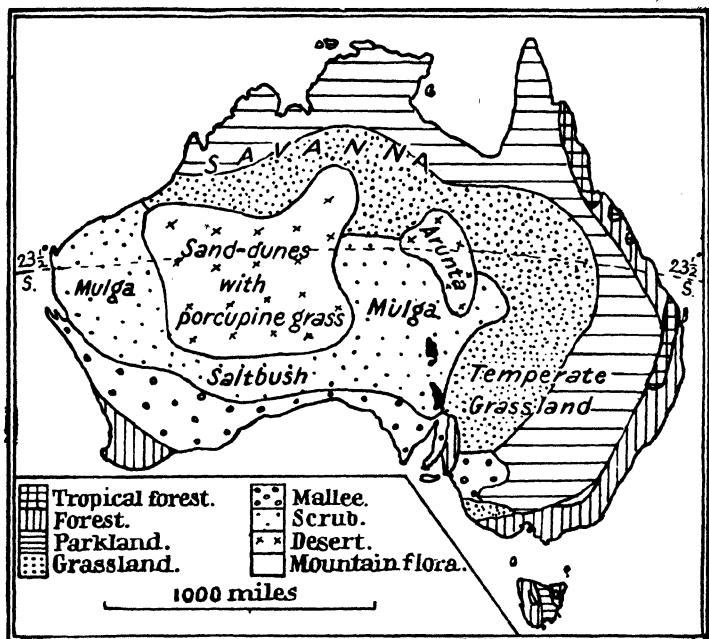


FIG. 113. NATURAL VEGETATION OF AUSTRALIA

Based on Griffith Taylor and A. V. G. James

between the Flinders Range on the west and the Blue Mountains on the east. As a result the western part is deprived of much of the rain brought by westerly winds in winter, and the eastern part of the summer rain from the trade-winds. In the north and west of the basin rainfall is light, and the rivers run only in the wet season, and then into salt lakes, but artesian water is available.

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The artesian wells of this area are described later (p. 422). But the Murray system is fed by snows of the Australian Alps, so that irrigation is possible, particularly in the Riverina district of the south. This is therefore one of the natural grassland areas of the world, but irrigation in the south has made possible also wheat- and fruit-growing.

(3) **Tropical Forest.** The coastal belt, extending from



FIG. 114. YOUNG MANGROVES COLONIZING A CAY, HOPE ISLANDS
Photo by M. A. Spender and J. A. Steers, Great Barrier Reef Expedition

Arnhem Land to Queensland, and including the Queensland portion of the eastern highlands, is clothed with a fairly wide belt of tropical forest. (a) In the northern part of this region, which gets summer monsoon rains, the undergrowth is thick and the trees are similar to those of the Malay forests, for the rainfall is heavy and the temperature high. Mangroves also fringe the coast in many places. Inland the tropical forest gradually changes to more open thorn woodlands, and later to the acacias and eucalypts (gum-trees) of the savanna. (b) The east coast of Queensland has rain all the year, but most in

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summer and least in spring. On the Bellenden Ker Range the annual total exceeds 100 inches. As temperatures are also lower, the forest becomes more open towards the south. The cabinet woods found in the wet forest to the north are replaced to the north and south of Brisbane by woodland areas of pine and cypress. The farms near Bris-

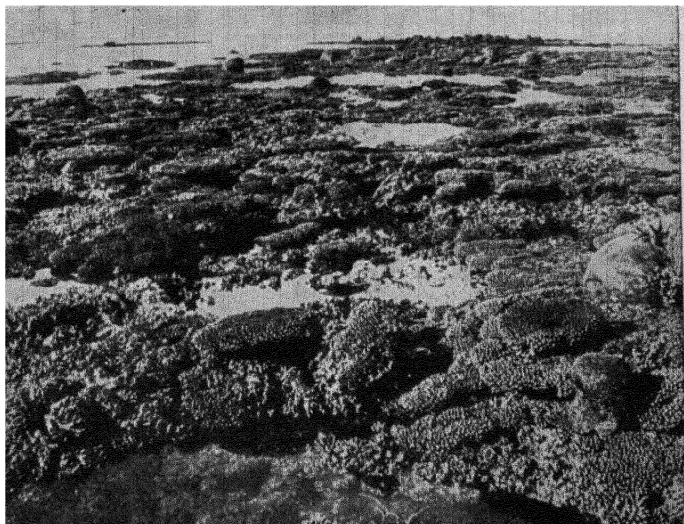


FIG. 115. TYPICAL SURFACE OF THE GREAT BARRIER REEF

By courtesy of the Development and Migration Commission, Commonwealth of Australia

bane grow a wide range of crops on the intensive system. Farther north the type of crop varies with the latitude.

Off the northern coast lie the coral reefs of the Great Barrier, following the coast for 1200 miles at a distance from it varying from thirty to seventy miles. It is the longest reef of its kind. Between it and the coast is a channel of calm water varying in depth from 10 to 60 fathoms, but studded with many islands. This channel is used by ships on the route to India, China, and Japan.

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The reef thus plays a similar part to the skerry guard of Norway. The coral polyp will live and grow only in clear shallow water, where the temperature is never much above or below 70° F. Where the water is sullied by soil brought down by the swift rivers there are gaps in the reef which are convenient gateways. When the branching coral reaches the surface the waves pile up the broken coral on the reef. In the north near Torres Strait fishing for the pearl-shelled oyster is an important industry, and everywhere along the reef natives gather large quantities of trepang (*bêche-de-mer*)—a small, cucumber-shaped creature which, when prepared, fetches a good price in the markets of China.

(4) The South-eastern Highlands, with rain at all seasons. This is the most important region from the point of view of settlement, for most of the population live within 300 miles of this coast. Though the northern part is a distinct region as just described, it is convenient here to describe the range as a whole. The eastern highlands are not a uniform system of folded mountains, like the Andes; they are a confused mass of ancient rock formations which were originally upfolded, but have been worn down by erosion and then re-elevated and much broken by faults. Volcanic rocks have intruded among the sedimentary rocks. This makes it difficult to represent the relief in the generalized maps of an atlas, so that some of the mountain-ranges usually indicated are in reality flat highland areas where the drainage is very difficult to define. The best-defined ranges, such as the Liverpool Range and the Blue Mountains, are folded and faulted massifs capped with basalt or intruded with igneous rocks.

The name Great Dividing Range is now seldom used. It is certainly the most important watershed separating the basins of the swift-flowing coastal rivers and the slow rivers of the plains, and it is a climatic boundary. But it is not of uniform structure, and politically it unites rather than divides, for railways follow it as well as cross it,

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linking the states to each other and the ports to the hinterland. In preference the names of the various sections are used. In Queensland the highlands are a plateau some 3000 feet high and 300 miles broad, rising to the highest point in the Bellenden Ker Range (5240 feet). The coastal plain is narrow, and rivers have eroded wide

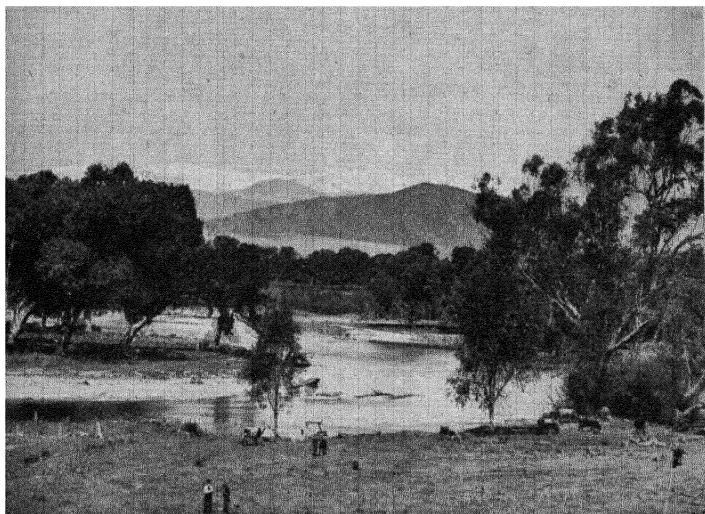


FIG. 116. THE KOSCIUSKO MASSIF FROM THE UPPER MURRAY

By courtesy of the Immigration Office, Commonwealth of Australia

valleys. The Fitzroy and Burkedin valleys provide important railway routes to the interior from Rockhampton and Townsville respectively. In the south of Queensland the Darling Downs—covered with sheets of basalt—are connected with the New England Range of New South Wales, which rises to 5000 feet in Ben Lomond, but in some parts are little above 2000 feet. The east-west spurs have separate names. The Hunter river separates the New England Range from the Blue Mountains, which

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attain to 4000 feet, with a particularly steep escarpment. Lake George and the head of the Murrumbidgee mark the Goulburn gap at the end of the range. To the south the Australian Alps reach 7328 feet in Mount Kosciusko. The mountains of Victoria, although over 5000 feet at many points, are really an old peneplain which has been uplifted. Also they lie in the region of winter rains. The whole coast receives plentiful rain. Sydney receives 49 inches, well distributed throughout the year, but most in autumn. All the east coast is subject to heavy downpours, and the short, swift rivers are liable to flood. But this coast has the best harbours and the largest towns.

(5) **The Region of Winter Rains.** (a) *The South Australian Highlands.* This highland region flanks the shores of Spencer's Gulf—Flinders Range to the north and Mount Lofty, near Adelaide, being best known. Immediately to the west lies a rift valley comparable in structure to the rift valleys of East Africa. Lake Torrens is only eighty feet above sea-level, and Lake Eyre is thirty-nine feet below it, while Spencer's Gulf is the southern extension flooded by the sea, and is therefore not an estuary, as the map might suggest. Running north and south, these highlands extract a good rainfall from the westerly winds in winter, when Lake Eyre is sometimes almost joined by floods to Lake Frome, making a great horseshoe-shaped lake round the north of Flinders Range. But there are no rivers of any importance, and the lakes become shallow and salt, or dry completely (Lake Eyre) by evaporation during the long season of drought. Round Adelaide the sunny northward-facing slopes, where rainfall is about 20 inches, are planted with vines. Wheat-growing and mixed farming are carried on near the highlands in the peninsulas of Eyre, Yorke, and Mount Lofty, where the rainfall is between 13 and 20 inches. Sheep-farming is successful up to the 10-inch limit of rainfall. In Victoria the highlands lie longitudinally to the winter westerly winds. The southern slopes of the mountains receive most

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rain and are forest-clad. Gippsland (South-east Victoria) also gets summer rains from the south-east winds. This natural region is the most densely populated part, for all the products of warm temperate lands do well, and there are valuable minerals in the mountains.

(b) *The Temperate 'Mediterranean' Region of the South-west.* Along the flat western coast, where rainfall over

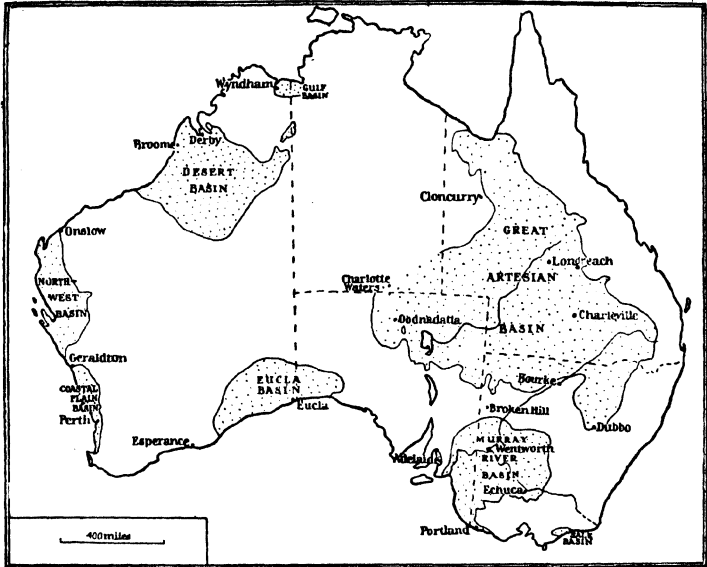


FIG. 117. ARTESIAN BASINS OF AUSTRALIA

15 inches occurs, mixed farming and fruit-growing are profitable. Up the escarpment to a height of 1000 feet, but especially in the peninsula between Perth and Albany, are forests of hardwood. The giant eucalypts, the jarrah, and the karri, growing 200 to 400 feet high, are famous for their great strength and durability. They are particularly valued for railway and dock-construction work and wood-block flooring. To the east, as rainfall diminishes, the

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forest thins out into bush. Wheat is grown, but cattle- and sheep-pasturing is at present more important. Along the south coast stunted gum-bushes, known as mallee, grow extensively. The south coast is a cliff coast without a harbour for 1000 miles, and receives occasional rains in winter.

PLANTS AND ANIMALS

The plant forms—the gum-trees that exude resin, the eucalyptus which, on the poorer soils, turns its leaves edgeways to the sun as a device to resist drought, the palms, and the tree-ferns—possess many striking features due to long isolation from other lands.

The peculiarities of Australian animals are also well known. The kangaroo and some other mammals are marsupial—*i.e.*, they carry their young in pouches. The cassowary and emu are running birds which have lost the power of flight. The so-called flying foxes and squirrels have membranes similar to those of a bat, which enable them to plane down from the trees, but they do not really fly. Other unfamiliar animals include the platypus, which has a flat bill and webbed feet, like a duck, and lays eggs and yet suckles its young, like a mammal; the dugong, a fish-like mammal which is herbivorous and has lungs instead of gills; tree-climbing frogs; and whistling spiders. These peculiarities are due to long isolation from the struggle for life against newer and better-equipped animals which developed in the other continents. But the European animals introduced by settlers have flourished, and the native animals have been crowded out in many cases. The dingo, or Australian dog, however, survives in spite of continuous attacks upon him. This savage dog does much damage to sheep in some districts.

LIVESTOCK

The pastoral industry is the most important, and Australia has by far the greatest number of sheep in any

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part of the world, except the continent of Europe. The number fluctuates owing to occasional drought, but in recent years has risen to over 114,000,000. The original sheep were brought from Bengal and South Africa. The wool of the former was more like hair. The texture of the wool was gradually improved by scientific breeding, and the average weight of a fleece has increased

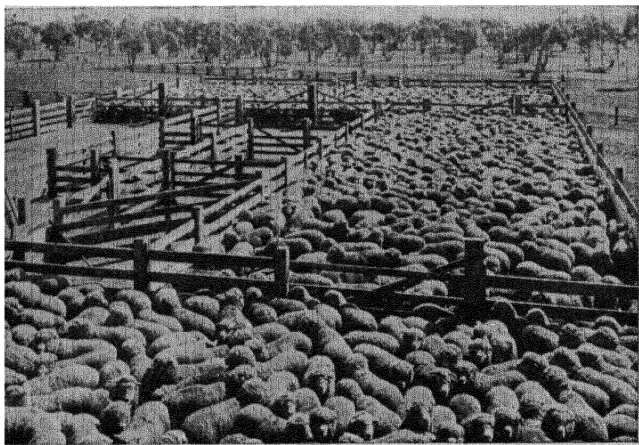


FIG. 118. SHEEP-SHEARING TIME

Photo Information Office, Commonwealth of Australia

from 3½ lb. to 8 lb. or more. Sheep can thrive even where vegetation is sparse if the area is extensive, as it is in Australia. They need few people to tend them. Wool is more important than the meat in the many districts which are far from markets. But nevertheless 10 per cent. of the flocks are used for mutton, and the value of exported mutton has reached the sum of over £3,500,000 a year.

The chief enemy is drought. The temperatures are high enough everywhere for open grazing throughout the year, and sheep like the salt-bush, which grows naturally in the dry belt between the grasslands and the desert. But some

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water is necessary. Artesian wells solve the difficulty to some extent. Thousands of such wells have been sunk, chiefly in West Queensland and New South Wales, and some are nearly a mile deep. From some of these bores water flows, but from many it has to be pumped. There are two theories to account for this underground water. The more generally accepted one is that rain penetrates the porous rocks in the high wet area of the eastern highlands, where the strata lie at a high angle, and flows down the slope of these, becoming imprisoned between a layer of clay and impervious rocks above it. When these layers are bored through the water is released and comes to the surface under pressure from the higher levels. The other theory attributes the supply to subterranean storage in the rocks from the time when the plains were the floor of a sea. The water contains many salts in solution, and while it is invaluable for stock its value for agriculture is probably less than that of surface water, which is stored by building dams. In any case its supply seems to be too limited to allow irrigation for extensive agriculture.

Temperatures as well as water-supply must be considered—the desirable average is not above 75° F. as a rule. Combining these factors, we see that the western slopes of the highlands, especially in New South Wales and Victoria, are the ideal areas. The highlands themselves are excellent, especially for breeds raised for meat as well as wool, like the merino, Lincoln, and Leicester. The western plains graze sheep of poorer type, and the coastal plain the coarse wool sheep. The Riverina district of New South Wales contains nearly half the flocks, the sheep pastures of Queensland round Longreach, Cunnamulla, and the Darling Downs about one-sixth, and the Ballarat district in Victoria also one-sixth of the total.

The shearing, usually done in August and September—that is, in early spring—is carried out in large buildings specially planned to ensure that the wool is quite dry

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when shorn in order to prevent fermentation, and also that the sheep are handled expeditiously. The shearing is done by electrical or compressed-air machinery or by hand, or both. The wool is compressed into bales of about 350 lb., and sent by wagons drawn by teams of



FIG. 119. SHEARING BY MACHINERY

By courtesy of the Development and Migration Commission, Commonwealth of Australia

oxen to the railhead, and so to the nearest port. Some of it is washed in soapy water to remove the grease, but most of it is exported unscoured. The Australian wool clip amounts to one-quarter of the total world-production. Australian wool goes chiefly to London and other European markets.

Australian woollen mills are, however, slowly increasing in number. There are now eighty-one mills, of which

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number Victoria and New South Wales together possess forty-nine. Geelong and Sydney are the chief cities concerned.

The rabbit pest reduces the amount of pasture, particularly in the west. New South Wales and Western Australia have spent millions of pounds in fencing, but they



FIG. 120. WOOL TEAMS ON THEIR WAY TO THE SEASIDE

By courtesy of the New South Wales Government Tourist Bureau

continue to spread. Foxes and dingoes attack and kill many lambs and sheep.

As cattle need long, moist grass the areas suitable for them are much more restricted than for sheep. A minimum rainfall of 20 to 25 inches may be taken as a guide, so that the east coast, Queensland, and Northern Territory are the most suitable areas. The number of cattle is about 13,500,000, which includes about 2,800,000 dairy cattle. Queensland (especially the south-east) contains nearly half the cattle reared for beef, but a large number of dairy cows are kept. In New South Wales, Victoria, South Australia, and Tasmania dairy cattle are chiefly reared. These

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are mostly grazed on the coastal plains. Gippsland (Victoria) and Mount Gambier (South Australia) are the best dairy districts.

It will be noted that dairy cattle do best in the cooler, wetter districts, but the beasts with the highest yield of beef come from the warmer districts of the north and west.

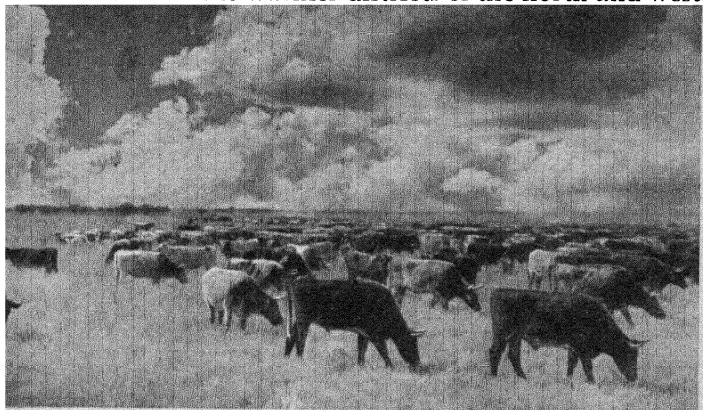


FIG. 121. MOB OF THREE THOUSAND BULLOCKS OVERLANDING
FROM THE GULF COUNTRY (NORTH QUEENSLAND) TO NEW
SOUTH WALES

By courtesy of the Immigration Office, Commonwealth of Australia

The development of butter export is comparatively recent and is expanding. The value of the butter exported now exceeds that of the beef and other meats, and is more than double that of the hides and skins exported. The butter factories are largely co-operative. Cheese, milk, and milk products have more than doubled in value in the last twenty years. There are also about a million pigs, mainly in New South Wales, Victoria, and Queensland. Bacon and ham, therefore, are valuable products. Britain and France purchase the larger part of these supplies.

Poultry-keeping and egg-production are favoured by sunshine throughout the year, Victoria, New South

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Wales, and South Australia being the most productive. Goats to the number of 200,000 are reared.

There is also horse-breeding, not only for home needs, but for export to India and elsewhere. But during recent years the number of horses has steadily declined. There are now about 1,700,000 horses, New South Wales and Queensland being the chief areas. Mules and donkeys

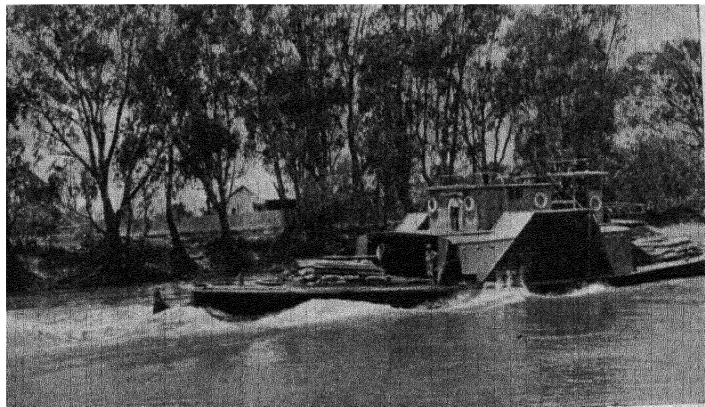


FIG. 122. WHEAT BARGE ON THE MURRAY

By courtesy of the Immigration Office, Commonwealth of Australia

as well as camels are also used for transport in both Western and South Australia.

AGRICULTURE

Agriculture is only less important than the pastoral industry, and much more important than mining. The outstanding crop is wheat, which is grown chiefly in a belt south of the latitude of Brisbane, commencing about 150 miles from the coast, extending farther inland to a depth of 100 to 150 miles. The belt extends southward to the hinterland of Melbourne and Adelaide. Autumn

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and spring rains are more important than the annual amount, which varies between 15 and 25 inches. The former are needed for ploughing and the latter for maturing the grain. Although 'dry farming' has increased the possible wheat area, there is a close connexion between rainfall and yield—viz., about five bushels per acre less than the winter rainfall in inches. New South Wales,



FIG. 123. THE STRIPPER OR COMBINED HARVESTER

Drawn by horse-team or tractor, this machine strips off the ears in a broad swath, threshes the grain, and stores it in a large bin, from which it can be directly bagged.

By courtesy of the Immigration Office, Commonwealth of Australia

Victoria, and South and Western Australia each has between two and four million acres under wheat. Irrigation has made the Riverina and the lower Murray very successful farming areas. In Victoria the Wimmera is the best wheat district. In South Australia the wheat belt extends over rolling country for 150 miles inland north of Adelaide. In Western Australia the wheat belt measures 600 by 200 miles in the south-west area. Soils are mostly red loam, but vary to fairly heavy clays; they are rich

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and easily worked, for the natural vegetation of grass with gum mallee and pine is readily cleared, and level plains permit ploughing and reaping by machinery. Owing to the abundance of bright sunshine, the wheat is hard and makes the highest grade flour. Australia has about 15,000,000 acres under wheat, which is 60 per cent. of the area in Canada under the same crop.

Wheat-growing and sheep-rearing generally go together for economy. The sheep fertilize the ground, and keep down weed-growth on fallow land. Considerable crops of hay, oats (green forage), maize, potatoes, and barley are grown, and market-gardening is found near the towns. Tobacco- and cotton-growing have begun, but rice, tea, and coffee await the solution of the cheap labour problem. Efforts are being made to extend the cotton-growing industry. Cotton cultivation is confined mainly to the east-coast valleys of Queensland, for the rainfall is not too heavy and sunshine is abundant. The cotton-growing industry is extending southward along the coast of New South Wales. But cotton is grown also in Central Queensland under irrigation, and Western Australia has an area which is suitable for it. But it is mainly grown only as a subsidiary crop. Ginning and oil-mills have been erected. The main difficulty again is the cost of labour, which applies also to the sugar-cane crop of Queensland grown round Bundaberg, Mackay, and Cairns. Both are worked entirely by white labour, and are assisted by Government subsidies. The sunny climate is very favourable to fruit-growing. Both sugar-cane and fruit are grown on the coastal plain south of Brisbane, where also dairying is a widespread industry. Tropical Queensland produces bananas, pineapples, mangoes, and oranges, while the temperate south grows apples, pears, peaches, plums, every kind of citrus, and berried fruits. Raisins are an important product in the vine-growing 'Mediterranean' districts. Tasmania is famous for its apples, but other fruits do well.

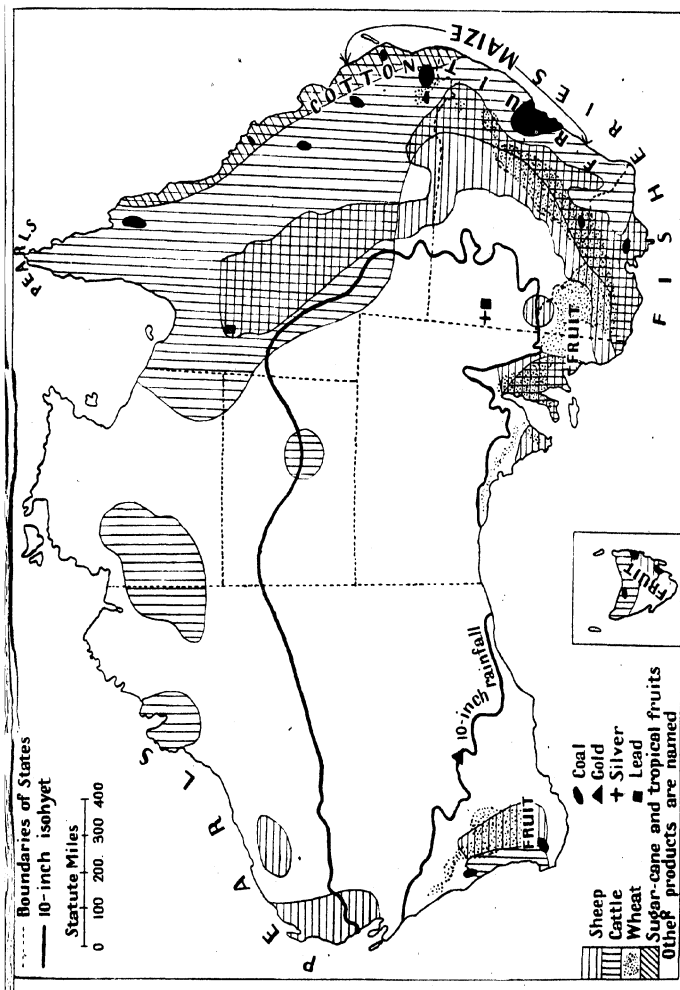


FIG. 124. DISTRIBUTION OF IMPORTANT PRODUCTS OF AUSTRALIA

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FORESTRY

Australia is not so rich in timber as the other continents, but hardwoods, ironbark, and gums found in the south-east and south-west are of excellent quality; the red and white mahogany, rosewood, bean, maple, and cabinet woods are found in North-east Queensland, in Gippsland, and in the Yorke peninsula of South Australia. The region of the most valuable hardwood (jarrah and karri) is South-west Australia, as already mentioned. Sandalwood from Queensland and West Australia is exported to China and India, where it is burned to make incense in the temples. Soft woods for houses are mainly imported from New Zealand and America. The chief Australian softwoods are the cypress, pine, and cedar found on the western slopes of the highlands.

MINING

The discovery of gold in New South Wales in 1851 began the development of population in Australia, for numbers increased from 220,000 to over 1,000,000 in twenty years. Mineral products now constitute only 5 per cent. of the annual wealth produced. But there is still much gold to be won, and the ancient rocks, both of the desert plateau and of the highlands, are rich in silver, lead, zinc, copper, tin, iron ore, and many other metals.

Fortunately for transport reasons, the most important coalfield is found along the coast, east of the Blue Mountains, between Newcastle on the north and Bulli on the south and extending inland beyond Lithgow. Sydney occupies a central position in this district, and is thus able to export coal to Chile and Asia, as well as to other parts of Australia and New Zealand. The coal is of excellent quality and lies in horizontal seams at no great depth. Newcastle and Maitland are the chief mining centres. Lithgow, having local supplies of iron ore, is a great iron

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and steel centre. The annual output of this coalfield exceeds 8,000,000 tons.

In Queensland the coal lies inland in widely separated basins, the most productive of which is at Clermont, west of Rockhampton. Ipswich, near Brisbane, Maryborough, and two districts in the Northern Highlands west of Cooktown are also mining areas. But the whole Queensland output is only about one-seventh that of New South Wales.

In Victoria coal is found in Gippsland, where the output is well below that of Queensland. In Western Australia coal is worked in the south-west, but is not of such good quality. Tasmania too has coalfields on the east coast near Fingal, and in the south. Thick deposits of somewhat poor coal occur also at Leigh's Creek, in the north of the Flinders Range of South Australia.

MANUFACTURES

During the last twenty years Australia has ceased to be merely the producer of raw materials. Under the supervision of British operatives manufactures of all kinds have developed. Many famous British firms engaged in the steel trade, boiler-making, confectionery and woollen trades, have established Australian factories. The number of factories connected with clothing and textile fabrics, food and drink, metals and machinery, vehicles and harness, woodwork, books and paper, and many others have steadily increased, and now total some 23,000. There are now more people employed in manufacture than in the production of raw materials. Further, the value of manufactured products now nearly equals that of the pastoral and dairy products. But production is mainly for the home market, for the population is at present insufficient to organize any industry on a scale sufficiently large to compete in the world's markets. Although practically every raw material is available, Australia is so remote that transport costs are bound to be

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high. Even in the soft-fruit trade (pears, peaches, etc.) it is necessary on this account to dry them or tin them for export. These manufacturing industries are not confined to the large towns, but are opening up in country centres. They are 'safeguarded' against unfair competition from imported goods by tariffs. These tariffs are planned to keep out alien goods made where conditions of labour are unfair, to admit a reasonable amount from friendly countries, and in all classes to admit British goods on a lower rate than for any other country. The countries of Eastern Asia contain enormous populations, among whom the demand for Western goods is increasing. At present Australia's trade with the East consists mainly of butter, coal, copper, grain, horses, skins, and wool. Increased population alone can enable Australia to reap the advantage of nearness to Eastern markets.

SOCIAL LIFE

The standard of life is high, for the Anglo-Saxon passion for democracy has been unrestricted. Education is highly developed and free. The cities are modern in every way, spacious and beautifully laid out, with parks and recreation-grounds. Away from the coast there are many county towns, each a market and social centre for the countryside, and now much better served by roads and railways than at first. Sport of all kinds plays a big part in every one's life, but work no less is required from all. But townships are often far apart, and the population is small for such large areas. The density is only 2.24 persons per square mile. England and Wales, with an area of about 58,000 square miles, have a population of 40,000,000, or 700 persons per square mile. Queensland has a total area exceeding 670,000 square miles, yet its total population is 947,000, or between one and two persons per square mile.

It is natural that the large towns should be on the

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coast, for the coast enjoys the best climate, and conditions of life depend largely upon the interchange of raw materials for the manufactures from abroad. There are, of course, many other reasons, partly historical and partly economic.

POLITICAL DIVISIONS AND TOWNS

Queensland is the second largest state of the Commonwealth and third in population. More than half its area lies between the tropics, so that large areas are thinly populated. On the whole population is more evenly distributed than in the other states. Cattle, especially for meat, and hides are important. Sheep are numerous. The chief agricultural product is sugar. Maize and wheat, together with many fruits, are also cultivated. The chief minerals produced are coal, copper, and tin. The most developed area is the temperate south-east.

Brisbane (299,782), the capital, is finely situated on the navigable Brisbane river, fourteen miles from Moreton Bay, amid sub-tropical trees and palms. The two halves of the city are linked by the great Victoria Bridge. Unlike Melbourne, it is not centrally situated, and has many smaller ports competing with it. River floods have silted the estuary, which, in spite of dredging, is too shallow for large vessels. The rich region of the Darling Downs, with its cattle and sheep pastures, wheat, and minerals, and the railway from the interior, supplies the chief exports of wool, frozen meat, and dairy products. Among the more prosperous of its industries are boot factories and tobacco and soap-making works. Other products from coastal plains, like sugar (molasses and rum), fruit, arrow-root, maize, and wine, are distributed by train or ship to other parts of the Dominion.

Rockhampton, on the Fitzroy, thirty-five miles from the sea, collects the products of a large hinterland, and is an important railway terminus, with tanneries and refrigerating works. Townsville, in North Queensland, is the

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second port of the state. Its exports include sugar from the Burdekin valley and gold and copper from the interior. A new mining centre for metals is growing up at Mount Isa, near Cloncurry. Industries at Townsville deal with sugar, dairying, and meat. Maryborough is a centre for fruit and timber and a port for the minerals from Gympie and the Burnett valley. Cairns has a fine harbour

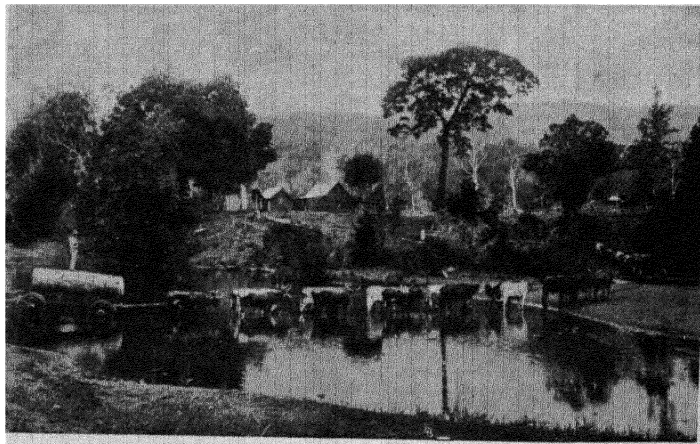


FIG. 125. FARM IN QUEENSLAND
Photo E.N.A.

and serves an important district likely to develop. Besides being attractive to tourists, the district produces sugar, bananas, and timber. Tin and silver-lead from Herberton and copper from Chillagoe are also shipped. Mackay and Bundaberg are the chief centres for sugar; Gladstone for cattle and copper; Cooktown for pearl and *bêche-de-mer* fisheries.

New South Wales contains over a third of the total population, although the state occupies only one-tenth of the total area. In the production of wool, wheat, dairy produce, and coal, as well as in manufactures, it is the

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leading state. Population centres chiefly round Sydney and Newcastle.

Sydney (1,235,367), the capital, is the largest and oldest town of the Commonwealth. It is built on one of the wonder harbours of the world, which has a circumference of 200 miles of coastline, with deep water close to the shore. Six miles from the entrance to the harbour the opposite shores have now been spanned by a great bridge, the central span of which is 1670 feet long and 170 feet



FIG. 126. SYDNEY HARBOUR BRIDGE, 1931

Photo Australian Government

above the water. Sydney is the main base for the Australian Navy. Beautiful in its setting, with blue water, blue mountains in the distance, and wooded bays, it is not surprising that its population has more than doubled within the last ten years. It attracts to itself most of the overseas shipping of the continent; for round it lies the best coalfield, and railways bring to it for export the pastoral, agricultural, and mineral wealth from all parts—wool and frozen meat, wheat, coal, hides, skins and tallow, gold, fruit, and cabinet wood. From abroad textiles, motors, oils, machinery, tea, and all kinds of manufactures are brought to its warehouses. Locomotives and rolling stock, woollen and leather goods, soap and furniture, are among its flourishing industries, carried on in more than five thousand factories.

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Newcastle (105,000), 60 miles to the north on the Hunter river, is the chief coal port of the Dominion. The industries are smelting, engineering, and shipbuilding. It is the fourth port of the Dominion, and has a large general trade. Grafton and Lismore are typical towns in the coastal district to the north, which have sugar-refineries,

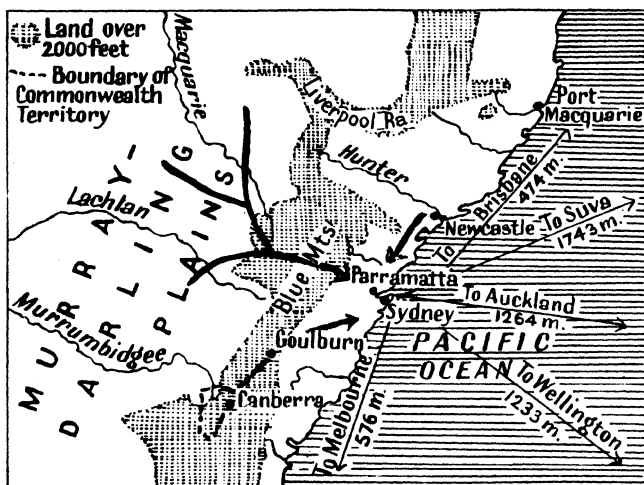


FIG. 127. POSITIONS OF SYDNEY AND CANBERRA

sawmills, and tanneries, and are centres of a rich dairy and agricultural area.

Of towns in the interior Broken Hill (26,900), the largest of the mining towns, produces silver-lead and contains half the population of the western division of the state. Of the towns not concerned with mining Goulburn (15,000) is the largest. It is an important railway junction, market, and tourist centre, with woollen mills, milling, brewing, tanning, and shoe industries. Gold was first discovered in Australia in 1851 near Bathurst, but the production is now unimportant. Bathurst is now

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a market centre for wheat, and has industries like Goulburn, together with the manufacture of railway plant.

Large areas are being developed by irrigation schemes in the valleys of the Murray and Murrumbidgee and elsewhere. The best known is fed by the storage dam at Burrinjuck. This reservoir, over 20 square miles in area,



FIG. 128. CANBERRA, FROM RED HILL.

By courtesy of the Development and Migration Commission, Commonwealth of Australia

feeds the settlement, which is 240 miles from the dam and which extends over 150 miles down the river. Cold-storage plant and factories have been built for the preparation for market of butter and cheese, bacon and fruit, and the products of the land thus irrigated.

Federal Territory. Canberra (9000) is the Dominion capital, standing in Federal territory 940 square miles in extent, drained by a tributary of the upper Murrumbidgee. Like Washington (U.S.A.) and Ottawa, in

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Canada, it is placed near the most important state capitals without advancing the prestige of one at the expense of another. Its highland site, nearly 2000 feet above sea-level, is sheltered by well-wooded higher hills, and is well supplied with water. It is a beautiful city, with a magnificent Parliament House and other national buildings. The distance to Melbourne is twice that to Sydney, but the main line between the two passes within easy range.

Victoria enjoys the most temperate climate of the mainland states, and, though the smallest of them, has a population of about two-thirds of that of New South Wales. It is therefore well developed. More than half the population of the state centres round Port Phillip. Pastoral, agricultural, and manufacturing occupations are more important than mining. The state grazes a large number of cattle, and dairying is more important relatively than in any other of the states. There is also a big trade in wool both for export and for local manufacture. The agricultural products are those of temperate lands, wheat occupying over 60 per cent. of the cultivated area. Oats (mainly for fodder), vines, and orchards occupy a large part of the remainder. Forestry too is important, particularly for coniferous trees.

Melbourne (992,000), the capital, is, like Sydney, also favoured by nature—a large landlocked harbour, central on the south-east coast, rugged, wooded highlands in the background, across which the Kilmore Gap provides an easy crossing. Railways to the interior were easier to construct than from Sydney, but Port Phillip, being the drowned valley of the Yarra river, is shallower both at the entrance and at the shores than Port Jackson. Large vessels berth at Williamstown and Port Melbourne. Its thoroughfares are wider than those of its older rival. Like Sydney, it is the intellectual and social centre of the state, with a university, art gallery, museum, and libraries. The gold from Ballarat and Bendigo commenced its prosperity, which now depends far more upon wool,

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wheat and flour, wines, frozen beef, hides, and skins, which are both exported and also used for its own industries, as varied as those of Sydney. Its total shipping trade is about three-quarters that of Sydney, but includes more coastal and less overseas trade.



FIG. 129. PART OF MELBOURNE, SHOWING PRINCE'S BRIDGE, WITH FLINDERS STREET STATION IN THE FOREGROUND

By courtesy of the Development and Migration Commission, Commonwealth of Australia

Geelong (39,500), forty-five miles to the south-west, also lies on Port Phillip. It exports wool and wheat. Ballarat (37,000), seventy-five miles to the north-west, a railway junction and the third city of Victoria, has flour-mills and breweries and manufactures woollen and iron goods. Bendigo (29,000), a hundred miles north, is a railway centre and a market for wheat, wine, and pastoral products. Engineering and manufactures of woollen and

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leather goods, pottery, bricks, and tiles are carried on. Echuca, on a river confluence of the Murray, is a river port and the present head of navigation. It distributes minerals and agricultural produce to Morgan (for Adelaide) by river, and to Melbourne by railway. It is the centre for wine and dried fruits, and has brewing, wagon-

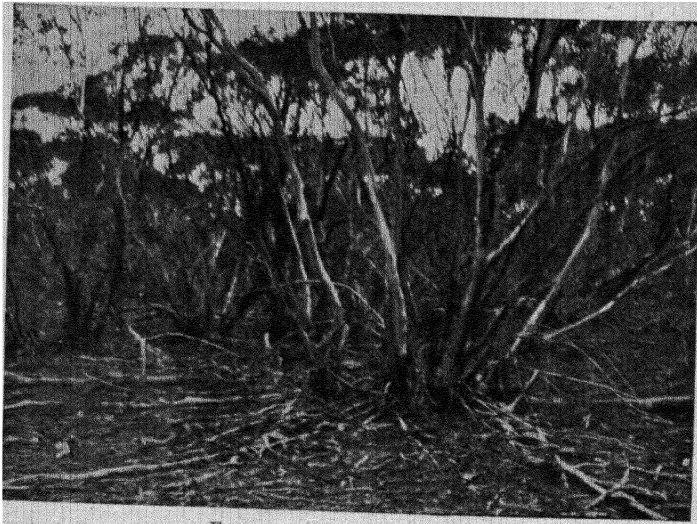


FIG. 130. MALLEE, VICTORIA

Rolling down and burning off this growth has cleared much land for wheat-growing.

By courtesy of the Immigration Office, Commonwealth of Australia

making, and woollen industries. Mildura, near the Darling confluence, is another wheat, wine, and wool centre for the irrigated lands round the Wimmera district in the south.

South Australia has more than four times the area of Victoria, but a total population of only a little over half a million, which is less than a third of that of Victoria. This is largely due to insufficient rainfall, for only one-fifth of the area receives an annual rainfall of over ten inches. The eastern side of St Vincent Gulf contains the

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bulk of the population, Adelaide itself having more than half of the total for the state. Much has been done to supplement the supply of water from artesian bores, particularly for the pastoral industry. Wool is the staple product. Very little beef, mutton, or butter is available for export. Agriculture yields crops of wheat, barley, and oats from the area round Adelaide and the south-west. The state produces two-thirds of Australia's barley. Under irrigation vines and fruits are grown. Manufactures are not much developed, and mining, though important in the past, has considerably declined.

Adelaide (313,000), the capital, is the third largest city in the Commonwealth. This too is a beautiful, well-planned city, standing on the river Torrens, which crosses the plains at the foot of Mount Lofty. Adelaide is about five miles from the coast. The ocean cables and overland lines from Port Darwin in the north and from all the capitals meet at Adelaide, and add importance to the share market. Manufactures are varied, including milling, brewing, pottery, and hardware. Its trade in wheat and flour, wool, wines, fruits, and minerals collected from the irrigated lands of the Murray and Broken Hill district of New South Wales amounts to one-third of the trade of Melbourne. Port Augusta, the terminus of the trans-continental railway at the head of Spencer's Gulf, has a considerable wheat trade. Port Pirie (12,000) smelts and exports silver-lead ores from the Broken Hill region, as well as wheat. Other towns are comparatively small, with populations below 4000. Industries in these settlements are chiefly connected with agriculture.

Western Australia, the largest of the states, covers almost one-third of the continent, but much of the area is uninhabitable, and the population is less than half a million. Over a third of the area is within the tropics, and the greater part is a plateau, with an average height of about 1200 feet. The rainfall over nearly half the state is less than 10 inches. The south-west corner enjoys the

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best climate, contains half the population of the state, and here agriculture is developing. The acreage under wheat has trebled in the last ten years. This part also produces valuable timber, especially hardwoods like jarrah and karri. Fruit-farming and wine production are increasing. Sheep are reared in increasing numbers both in the wheat belt and on the scrub lands, and wool is exported. Dairying is less important than elsewhere, but beef is exported. Mining is chiefly concerned with gold, of which the state produces nearly three times as much as the rest of the Commonwealth.

The towns of Western Australia have the disadvantage of being, like British Columbia, in Canada, far from the other populated areas. But the area is nearer the Suez Canal route. By this route Fremantle is 1650 miles nearer London than Melbourne, and over 2000 miles nearer than Sydney.

Perth (207,000¹), the capital, has increased its population fivefold in the last twenty-five years. It is a city of wide streets and open spaces; the climate is hot, but tempered with westerly breezes. It stands at the head of navigation on the Swan river, twelve miles above Fremantle, the fifth port of Australia. Gold from Kalgoorlie and wheat and timber from the south are exported; the local industries are smelting, tanning, and flour-milling.

Geraldton, 300 miles to the north, in the dry area, is a growing port which exports the wheat, wool, and minerals from the Murchison and Yalgoo goldfields. Albany, 350 miles south-east of Perth, has an almost landlocked harbour. It is a fortified coaling station, and exports wheat, timber, and wool. Bunbury is the second port for the state and serves the Collie coalfield. It exports also timber, wheat, and wool. Northam, on a tributary of the Swan, is the chief agricultural centre, with flour-milling and brewing industries.

The populations of Kalgoorlie and Coolgardie have

¹ This total includes the City of Fremantle (25,233).

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rapidly declined since the beginning of the century, but Kalgoorlie has still 9000. The next largest town on the goldfields is now Boulder (5800), near Kalgoorlie. The goldfields' water-supply comes from the Mundaring reservoir in the Darling Range, and the water is lifted over 1000 feet by nine pumping-stations. The water flows by gravity from one pumping-station to the next, roughly

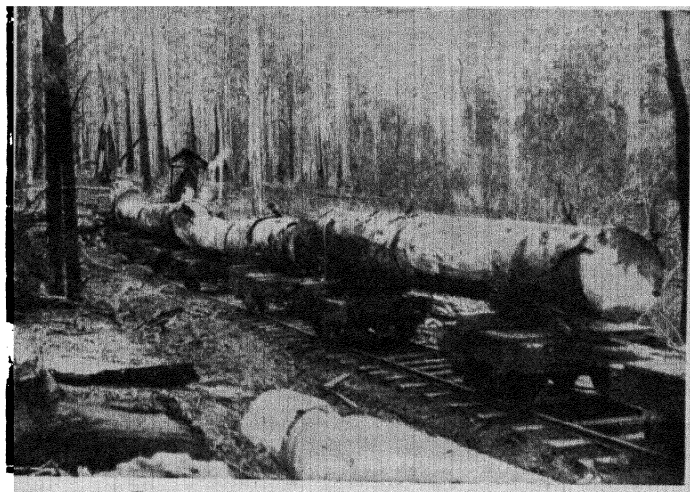


FIG. 131. TIMBER TRAIN, WESTERN AUSTRALIA

By courtesy of the Development and Migration Commission, Commonwealth of Australia

forty miles apart. This scheme cost nearly £4,000,000, and the charge for water increases with distance.

The **Northern Territory** covers 523,620 square miles, but the total population (excluding aborigines, who number about 20,000) is less than 5000. This is mainly due to the tropical character of the country and the large expenditure necessary to develop its resources. There are two climatic periods—a wet season from November to April and a dry season from May to October. Nearly the whole of the rainfall occurs in the summer months.

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The Northern Territory is at present divided into two administrative areas called Northern Australia and Central Australia, the former having a Resident at Darwin and the latter at Alice Springs. Darwin is the chief centre, and has a fine harbour, which is but little used, except by coasting vessels. The other populated centres, such as Alice Springs, lie along the telegraph route, and stock-rearing is the chief occupation.

Tasmania is about the size of Scotland, and similarly has a small proportion of cultivated land. Half the island is forested with pines, beeches, and gums. Lying in the belt of the westerlies, in the latitude of Southern Chile, it has ample rain throughout the year, but is free from floods and tornadoes. The best agricultural areas and soils are in the lower, drier, warmer east. Seasonal conditions vary considerably, crops being harvested in some parts when not showing above the ground in others. Productions are therefore varied, and there is no staple product. Productions of fruit, hops, oats, wheat, potatoes, and hay maintain a much more even yield than in the mainland states, serious drought being unknown. The wool production has much increased.

The fruit-growing district is in the sheltered south-east, particularly in the Derwent valley. Over 4,000,000 bushels of apples were produced in 1932-33. Pears, apricots, plums, and small fruits also bring considerable income to the island.

Dairy-farming is conducted on the co-operative principle under State provision. Over 4000 tons of butter and nearly 700 tons of cheese are produced annually. This industry flourishes in the wetter region of the north-east and north-west. On the eastern slopes of the highlands some 2,000,000 sheep are grazed.

Minerals (chiefly zinc and copper, but also tin, silver, lead, and coal) to the value of £800,000 are produced annually. Zinc and fresh fruits head the list of exports. Manufactures are increasing with the aid of electricity.

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These include not only the manufacture of woollen goods and the smelting of ores, but fruit-preserving and confectionery-making. On a smaller scale a number of factories deal with timber, leather, and agricultural products.

Hobart (60,000), the capital, is picturesquely situated at the foot of Mount Wellington, which is often snowclad.

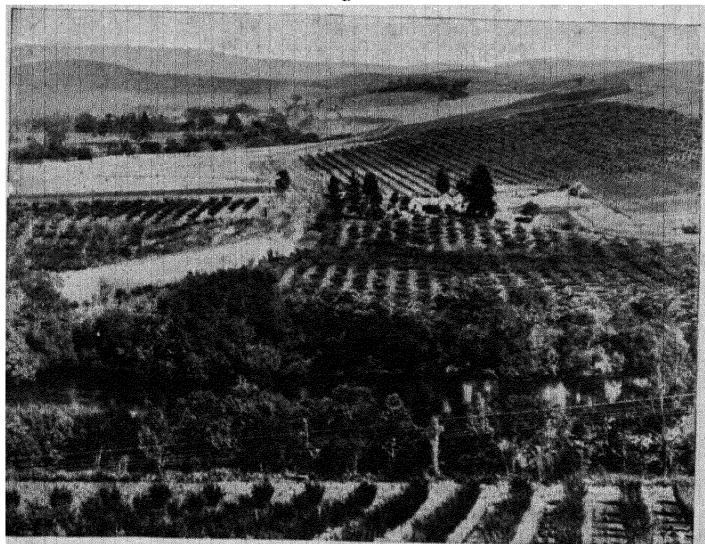


FIG. 132. APPLE ORCHARDS, TASMANIA

By courtesy of the Immigration Office, Commonwealth of Australia

It faces a beautiful bay opening to the Derwent estuary. It is the oldest Australian city after Sydney. Easy routes by river valleys lead to all parts of the island, and a great hydro-electric scheme recently completed provides the cheapest current in the world. It is the chief centre for the industries above mentioned. A railway runs to the north through the dairy lands and orchards to Launceston (38,000), the next most important town forty miles up the Tamar estuary. Launceston is nearer to the mainland and

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to the mining areas. Its industries are similar to those of Hobart, but tin-smelting is also important. In addition it exports ores, as well as timber, hay, oats, and potatoes, to Melbourne, and receives from the mainland imports of machinery, textiles, clothing, and foodstuffs. But more than half of the trade of the island passes through Hobart, which lies on the Cape route to New Zealand.

COMMUNICATIONS

Railways. As in Africa, railway development was hindered by natural obstacles presented by the highlands being close to the coast. The original object was the same—to connect some point on the coast with a mining or pastoral area of the interior—and lines developed independently of each other, so that there is no real system. Subsequently, in Australia, by skilful engineering and the construction of great bridges, lines have been completed along the east coast from Cairns to south of Sydney. But between Sydney and Melbourne there is no line from the coast to the interior, and no coastal railway, except in the south of Victoria. The other main lines follow the highlands, as in Africa.

But whereas in South Africa the lines from the coast converge and compete for the trade of the hinterland, in Australia they are more or less parallel and independent. In Australia, too, the traffic is more varied, including a larger proportion of the raw materials of food and clothing, as well as minerals. There are now about 27,000 miles of railway in Australia. In both Dominions most of the railways are now owned by the State, and in both the 3 ft. 6 in. gauge is the one most used. In Australia, however, three gauges are in use. Queensland uses the 3 ft. 6 in., Victoria the 5 ft. 3 in., and New South Wales the 4 ft. 8½ in. gauge. The disadvantages arising therefrom are great and increasing, and the need for adopting a standard gauge (4 ft. 8½ in.) is recognized, but the cost

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of making this change would be prohibitive. In a six days' journey across the continent from Fremantle to Brisbane there are five changes of gauge:

	GAUGE		MILES
	Ft.	In.	
Fremantle (W.A.)—Kalgoorlie (W.A.) .	3	6	387
Kalgoorlie (W.A.)—Port Augusta (S.A.) .	4	8½	1051
Port Augusta (S.A.)—Terowie (S.A.) .	3	6	120
Terowie (S.A.)—Albury (N.S.W.) .	5	3	814
Albury (N.S.W.)—Brisbane (Q.) .	4	8½	1012
Total			3384

Before reaching Brisbane the fifth change back to the 3 ft. 6 in. gauge takes place at Jennings, on the Queensland border, but another line entailing no change in gauge now connects Sydney with Brisbane *via* the coast and Grafton.

The first portion of this great route is a remarkable parallel to that from Port Nolloth to Ookiep, in South-west Africa. There is the same reason for its construction—an economic one—to tap the mineral wealth of the interior. The physical conditions are similar, a steep western scarp rising to tabular waterless desert. Between Kalgoorlie and Port Augusta four distinct types of country are crossed. For the first 167 miles the line crosses the granite plateau, rising to 1326 feet, the highest point. This region is well timbered, with gums and eucalyptus growing to a height of 50 or 60 feet. But on the limestone Nullarbor plains, which extend eastward for 450 miles, not a tree is to be seen: only blue bush and salt-bush, whose leaves absorb moisture from dew and any chance shower. For over three hundred miles the line runs without a curve. East of the limestone region a belt of sandhills, fifty miles wide, is encountered. For the remaining four hundred miles to Port Augusta the line first crosses red soil plains, well timbered with oaks and eucalyptus; then, reaching the granite once more, passes through the Wilgena sheep-run, 80 miles long, and finally past the shallow salt lakes,

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blue as the sea. For over a thousand miles not a single permanent stream of water has been crossed. This link between the eastern and western states saves three days on the run by sea from Fremantle to Melbourne, and is valuable for commerce and defence.

Passing through Quorn in a gap of the Flinders Range,



FIG. 134. OODNADATTA, NORTHERN SOUTH AUSTRALIA
Camel transport serving the railway.

By courtesy of the Immigration Office, Commonwealth of Australia

the line from the great silver-lead mine of Broken Hill to Port Pirie. It then climbs a spur to Koorunga, near Burra, a once famous copper-mine, and so through wheat-growing and sheep country and along the vine-clad western slopes of the range to Adelaide.

Continuing its route from Adelaide, the line runs across the Mount Lofty Range to the east, to negotiate which necessitates nine tunnels and a viaduct over a hundred feet high. The western slopes of the range are covered with beautiful residences and vineyards. A rapid descent is made to the plain to cross the Murray, where

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the old river swamps have been drained to grow maize and vegetables. To the east is a huge district now growing wheat. But between the Murray and the Victoria boundary the train runs for ninety miles through limestone plain, with mallee and eucalyptus growing in thick clusters. Mount Gambier, a town on a branch to the coast, is the centre of a district which has a rich volcanic soil and good winter rainfall, and grows all the English fruits and vegetables. There is also rich pasture for dairy cattle.

The line then climbs across the complicated highlands to Ballarat, the largest inland city of the Commonwealth, situated to the south of the famous goldfield. A sharp descent down the southern scarp of the highlands is made to Melbourne, 482 miles from Adelaide. The railways of Victoria have been extended from Melbourne, first to suburban districts, like Geelong, then to the goldfield, and finally on the route to Sydney, so that the mileage of 4721 in Victoria, the smallest state, compares favourably with that of Queensland (6567 miles) and New South Wales (6164 miles).

Climbing once more a gap in the highlands, the line turns eastward to Albury, where the New South Wales train is boarded. To the west lie the wheat and sheep lands and the vineyards of the Riverina. To the east is the rugged base of Kosciusko, sometimes snowclad. The Murrumbidgee is crossed at Wagga, to the west of which are the fertile lands irrigated by water from the Burrinjuck reservoir, near Yass. A little later the line forks to approach Sydney, either by a northerly route through mining towns and farming pasture-land along the western slopes of the mountains or southward through Yass to Goulburn. The northerly route is the more difficult, but very picturesque. The Blue Mountains are cut by river gorges a thousand feet deep. After passing through Bathurst, an industrial town in a wheat and sheep valley, there is a series of summer resorts. Many people visit the Jenolan Caves, near Katoomba, which are perhaps the

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finest example of water-action in limestone strata, similar to the Cheddar Caves of the Mendips or those of Derbyshire, in England.

The construction of this line across the Blue Mountains was accomplished with great difficulty, for the ascent from both sides is very steep. There are gradients of 1 in 30, zigzags, curves, and tunnels, the highest being nearly 4000 feet above sea-level. The southern route crosses the broad intermont depression of Lake George to the farming town of Goulburn, and on to Sydney, which is 582 miles from Melbourne.

From Sydney the line follows the coastal plain, crossing the Hawkesbury estuary by a mighty bridge to the coal-field and the fertile plains south of Newcastle. The main line follows the coastal plain to the north through Grafton and Lismore to Brisbane without any change of gauge. Another route leaves the coast at Newcastle and proceeds up the Hunter river through fields of maize and mining towns. Having crossed the Liverpool Range to Tamworth, it climbs to the granite plateau—thus avoiding the gorges that lie to the east and the spurs to the west—and follows it to the Queensland border. After a change to the narrow-gauge carriages, the plateau is followed to Toowoomba, on the Darling Downs, a rich agricultural area. A rapid descent through Ipswich, a coal-mining centre, leads to Brisbane, which is 725 miles from Sydney. From Brisbane a line runs along the coast through the gold-mining town of Gympie, the sugar-cane-growing district of Maryborough, the cattle-grazing area round Bundaberg, past the great gold- and copper-mines of Mount Morgan, to Rockhampton, which is 397 miles from Brisbane. The coastal route continues to Cairns, in the north, passing through Townsville.

Note the chief lines from the ports to the interior plains:

- (1) Sydney to Bourke, 450 miles, with its important branch to the gold- and copper-mines at Cobar.

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- (2) Brisbane to the pastoral towns Charleville and Cunnamulla, 600 miles.
- (3) Rockhampton to Longreach, 428 miles, almost following the tropic. A branch runs south-westward to the neighbourhood of Welford.
- (4) Townsville through the goldfields of Charters Towers to the copper area of Cloncurry. A line runs southward through the pastoral district of Winton to Longreach, thus providing an inland connexion of the last-mentioned two routes.
- (5) In North Queensland the line from Cairns, which serves a rich mining area.
- (6) Port Darwin to Pine Creek, Katherine, on Katherine river, and Birdum, 317 miles.

In all these cases, however, the lines differ from African railways in that, having climbed the steep scarp, they descend again and cross lowland plains instead of high veld. African conditions are, however, found in Western Australia. For in this part lines grow outward from the ports of Geraldton, Fremantle, Bunbury, and Albany, and the main line which links them runs along the plateau.

Another projected transcontinental route is to link Port

PRINCIPAL RAILWAYS AND GAUGES OF AUSTRALIA ¹

RAILWAY SYSTEM	GAUGE					TOTAL MILEAGE
	5 ft 3 in	4 ft 8½ in.	3 ft. 6 in	2 ft 6 in	2 ft.	
Queensland		68 8	6467·7		30 3	6566 8
New South Wales		6164				6164
Victoria	4599 ²			121 8		4720·8
South Australia	1451		1078			2520
Western Australia			4359 9			4359 9
Commonwealth Railways		1056·8 ³	1087·9			2144 7
Tasmania			644			644
TOTAL MILEAGE	6050	7289 6	13,637 5	121 8	30 3	27,120 2

¹ Based on the *Report on Commonwealth Railways Operations*, June 1934.

² Includes 202·8 miles in New South Wales Territory.

³ Includes 5 miles in the Federal Territory between Queanbeyan and Canberra.

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Darwin to Port Augusta. At present a section runs southward from Port Darwin for 317 miles, and another section runs northward from Port Augusta, through Quorn and Oodnadatta, to Alice Springs, which is 772 miles from Adelaide.

Although Australia has a great length of railway in proportion to population, the mileage is low in regard to area compared with other countries. But the motor-car, lorry, and 'caterpillar' tractor are reducing distances, and, although roads outside the settled farming areas are often poor, the general flatness of the interior favours movement.

Navigable Waterways. Speaking generally, the rivers afford little assistance. The Murray is navigable for 1066 miles to Echuca. The Darling, Murrumbidgee, and the lower courses of the eastern coastal rivers are navigable for short sections. On the inland courses traffic is chiefly in wool.

Airways. The thin population and wide spaces of Australia, combined with favourable atmospheric conditions, offer great scope for communication by air. Already there are some 9000 miles of regular routes, with a weekly service between Brisbane, Cloncurry, Normanton and Daly Waters, Melbourne and Hay, Adelaide and Mildura, Adelaide and Broken Hill; also from Perth northward along the coast, and between Melbourne and Tasmania. A weekly air-mail service between England and Australia, *via* India, Singapore, and Darwin, began to work in 1934. There is also an air service between Sydney and New Zealand.

EXERCISES

1. Draw a map to show the relief, lakes, and rivers of Australia. Add brief descriptive notes.
2. Compare Australia with Southern Africa (south of the equator) in relief, climate, and natural vegetation.
3. Draw graphs of the following climatic statistics, briefly describe

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the types of climate indicated, and suggest the location in Australia of A, B, C, D, and E.

MEAN MONTHLY TEMPERATURES (IN DEGREES FAHRENHEIT)

PLACE	J.	F.	M.	A.	My.	Jn.	Jy.	Aug.	S.	O.	N.	D.
A	73	74	70	64	58	53	52	54	57	62	67	71
B	77	76	74	70	64	60	58	60	65	70	73	76
C	80	81	79	75	68	63	61	63	66	69	73	77
D	84	83	84	84	82	79	77	79	83	85	86	85
E	62	62	59	55	50	47	46	48	51	54	57	60

MEAN MONTHLY RAINFALL (IN INCHES)

PLACE	J.	F.	M.	A.	My.	Jn.	Jy.	Aug.	S.	O.	N.	D.	ANNUAL TOTAL
A	0.7	0.7	1.0	1.7	2.8	3.1	2.6	2.5	2.0	1.7	1.1	1.0	20.9
B	6.5	6.3	5.7	3.7	2.8	2.7	2.3	2.1	2.0	2.6	3.7	4.9	45.3
C	0.3	0.9	0.5	0.6	1.5	2.8	1.7	0.7	0.3	0.1	0.0	0.1	9.5
D	15.9	12.9	10.1	4.1	0.7	0.1	0.1	0.5	2.2	4.8	10.3	61.8	
E	1.8	1.5	1.7	1.9	1.9	2.2	2.2	1.8	2.1	2.3	2.5	2.0	23.9

4. Explain in detail why the south-eastern section of Australia is the best peopled and most fully developed part of the continent.

STATE	TOTAL POPULATION	CAPITAL	POPULATION OF CAPITAL
New South Wales	2,601,000	Sydney	1,241,000
Victoria	1,820,000	Melbourne	992,000
Queensland	949,000	Brisbane	300,000
South Australia	581,000	Adelaide	313,000
Western Australia	439,000	Perth	208,000
Tasmania	228,000	Hobart	60,000

5. The above figures show that a very high percentage (in some cases over 50 per cent.) of the population of each state is in the capital city. To what extent do history, physical geography, economic development, and external trade explain this fact?

6. Write a descriptive and explanatory account of Australian railway development.

7. Indicate by sketch-maps and brief notes the location and importance of Melbourne, Adelaide, Brisbane, and Perth.

8. Discuss the "White Australia" policy.

9. The close-of-play score in a Test match in Melbourne is broadcast at breakfast-time on the same day in England. How do you explain this curious fact?

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10. Show the following trade statistics in graphical form, and add brief explanatory notes:

AUSTRALIAN TRADE FOR 1933-34

EXPORTS	VALUE (£1000)	IMPORTS	VALUE (£1000)
Wool	57,111	Textiles, yarns, etc. .	9,537
Wheat and flour . . .	11,863	Machines, iron, steel, tools, etc. .	4,632
Butter	9,129	Petroleum products .	4,430
Gold	8,154	Paper, books, etc . .	3,096
Meats	7,078	Motor-cars and parts .	3,008
Fruits, fresh and pre- served	5,611	Drugs, chemicals, etc. .	2,686
Hides and skins . . .	3,384	Bags and sacks . . .	2,430
Lead	2,426	Tea	2,169
Sugar	2,295	Timber	1,180
Eggs	1,067	Carpets and linoleums .	1,995
Silver	1,015	Tobacco	718
TOTAL VALUE OF ALL EXPORTS	99,310	TOTAL VALUE OF ALL IMPORTS	60,985

EXPORTS TO	VALUE (1932-33) (£1000)	IMPORTS FROM	VALUE (1932-33) (£1000)
United Kingdom . .	67,544	United Kingdom . .	23,543
Japan	11,468	Japan	3,537
United States . . .	3,539	United States . . .	8,084
France	6,054	France	1,195
Germany	5,090	Germany	1,832
China	6,285	China	267
Belgium	4,062	Belgium	391
India	831	India	3,423
Netherland East Indies	1,208	Netherland East Indies	2,931
Italy	3,276	Italy	676
New Zealand	2,770	New Zealand	1,103
Canada	1,209	Canada	2,315

CHAPTER XVI

NEW ZEALAND

OVER one thousand miles to the east of Tasmania, New Zealand extends from the latitude of Sydney to some 250 miles farther south than Tasmania, a distance of nearly a thousand miles. The North Island is about three-quarters of the area of the South Island, and Cook Strait, which separates them, is but the width of the Strait of Dover. Their joint area is about twice that of Great Britain, but they lie between latitudes 34° and 47° S., as compared with 50° and 59° N. They are, therefore, both longer than the British Isles and nearer to the equator, their middle latitude being 40° —*i.e.*, the latitude of Southern Italy. In short, they are the antipodes of the Bay of Biscay, Spain, and Tangier. In general the summer climate is similar to that of Britain, but the winters are not so cold.

The islands are much more mountainous than Britain. In the North Island mountains occupy approximately one-tenth of the surface. The mountain-ranges—Raukumara, Kaimanawa, Ruahine, and Tararua—extending from the East Cape peninsula in a south-westerly direction, and including the northern and western portions of the South Island range, are liable to earthquake and volcanic activity. Earthquakes occurred in 1922, 1929, and 1931. The Hawke's Bay earthquake of 1931 raised an area sixty miles long and, in parts, ten miles wide six feet or more in some places. The east-coast ranges form part of the great mountain border of the Pacific. The average height of the range is about 6000 feet, but contains the volcanic peaks Ruapehu (9175 ft.), Ngauruhoe (7515 ft.), and Tongariro (6458 ft.). These volcanoes are not extinct, though they remain dormant for long periods.

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The Auckland peninsula is part of a minor fold. Where the two folds meet, almost at right angles, in the region of Lakes Taupo and Rotorua there is one of the most remarkable volcanic regions, containing geysers, hot springs, mud-baths and lakes, actually boiling in some parts. Lake Taupo, 238 square miles in area, occupies

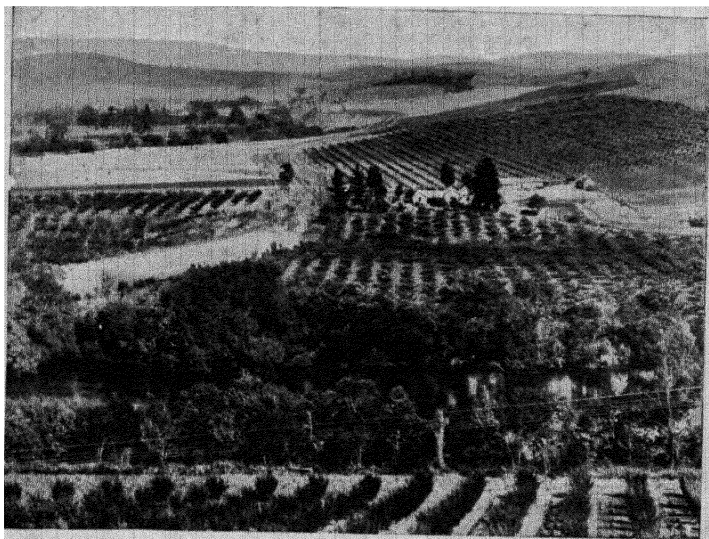


FIG. 135. MOUNT EGMONT

Note the forest cleared for dairying.

By courtesy of the High Commissioner for New Zealand

the centre of the island. The great geyser area of Rotorua lies forty miles to the north-north-east. In 1886 the beautiful Pink and White Terraces formed by deposits from the hot springs were destroyed during a volcanic eruption, but the medicinal properties of the many hot springs, which occur over a distance of some 300 miles, attract tourists and invalids, and Rotorua Spa is of premier importance. The largest lowland is between Auckland and the lake region. To the south-west Mount Egmont,

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an extinct volcanic cone, rises in solitary grandeur to 8260 feet. In the South Island the mountains cross to the west coast, forming a barrier backbone, eighty miles broad in places, with some seventeen peaks over 10,000 feet. The volcanoes of the South Island appear to be quite extinct, and the hot springs at Hanmer and other

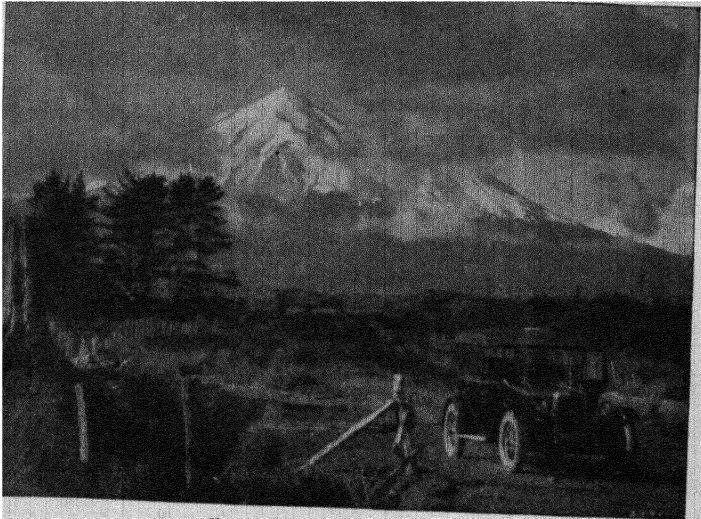


FIG. 136. FRANZ JOSEF GLACIER, FROM LAKE MAPOURIKA
By courtesy of the High Commissioner for New Zealand

places near the mountains are due to other causes. This mighty chain separates Westland from the Canterbury Plains, and contains many peaks clad with snow and glaciers. The Tasman Glacier is over 18 miles long and more than a mile wide. The highest peak is named Mount Cook (12,349 feet). Farther south is Mount Aspiring (9975 feet). They are well named Southern Alps, for, like the Alps, they are geologically recent, and their valleys, deepened by glaciers, contain long, narrow

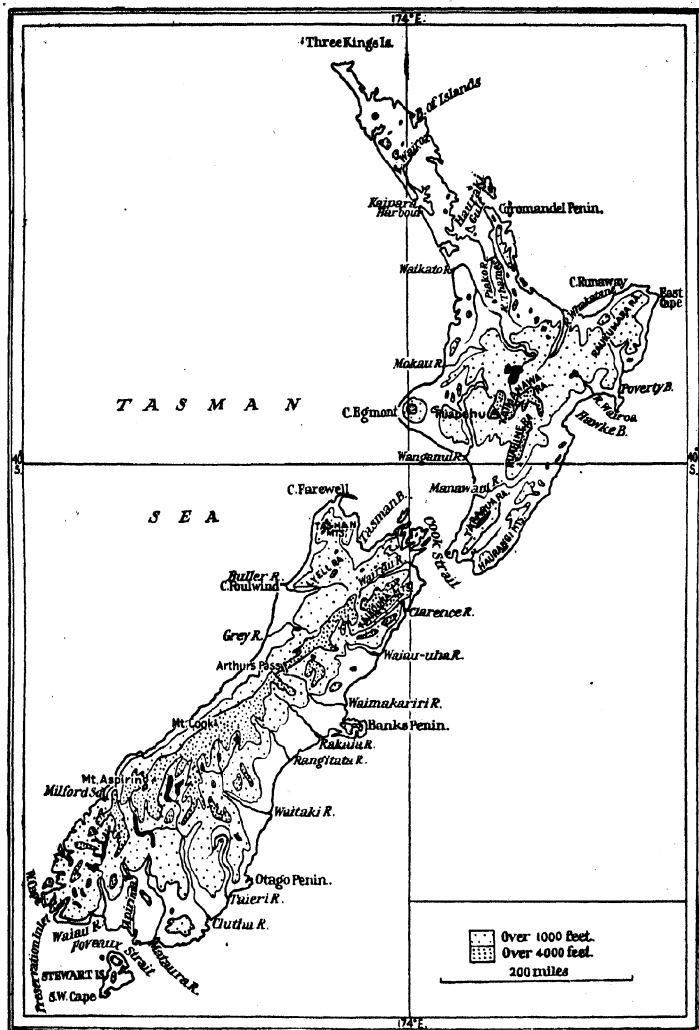


FIG. 137. NEW ZEALAND—PHYSICAL

Note the plateau of North Island and the position of the 'cold lakes' of South Island.

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lakes, waterfalls descending from hanging valleys, deep gorges, rushing glacier streams, and all the natural Alpine features. To the south the mountains form the west coast, and are cut by some thirteen deep fjords, penetrating far inland. Glaciers, notably the Franz Josef and Fox Glaciers, descend to within a few hundred feet of the sea. Milford Sound, the most famous, equals the Norwegian fjords in grandeur.

The largest lakes are Te Anau (132 square miles), drained by the Waiau river, Wakatipu (112 square miles), and Ellesmere on Banks Peninsula (108 square miles). Most of the rivers, fed by heavy rains, carry much sediment, which is deposited along their lower valleys, except when they flow through lakes. Only their lower courses are navigable, and those parts for short distances only, although they are wide rivers compared with their length. The only rivers useful for modern transport are found in the North Island, the chief of which is the river Waikato. But the Clutha in the South Island carries the greatest volume of water.

CLIMATE AND PRODUCTIONS

The islands lie mainly in the area of variable winds, chiefly westerlies. No part is shut off from the sea. Temperatures therefore vary but little (about 15° F.) between summer and winter, but the difference between the North and South of the Dominion is about 13° at each season. While the summer temperatures are similar to those of Britain, the winter is warmer, because New Zealand is oceanic, not close to a continent, and has deep, not shallow, seas surrounding it.

The South Island lies in the path of the 'Roaring Forties' throughout the year. These deposit very heavy rain on the western flanks of the mountains, for their height lowers the air temperature between 10° and 20° F. South of Westport there is a rainfall of between 100 and

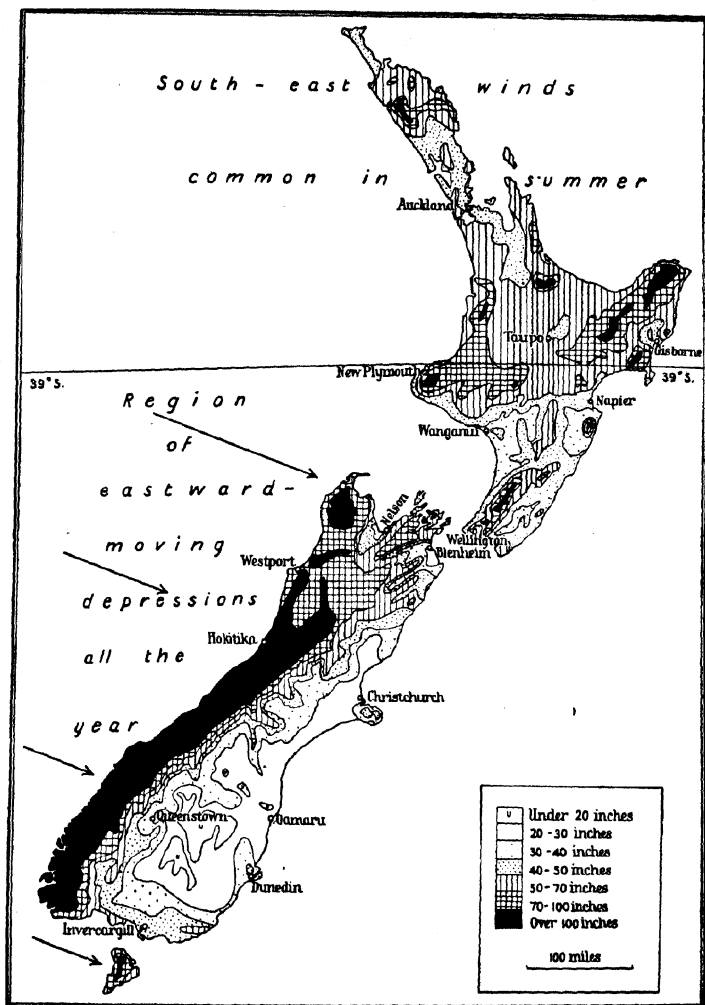


FIG. 138. MEAN ANNUAL RAINFALL OF NEW ZEALAND

Compare this map with Fig. 137. Note how closely relief and rainfall are related. Areas of heavy rain are to the windward of the highlands, while in the 'rain-shadow' areas to the leeward the amount rapidly decreases. In winter the North Island receives westerly winds, and the Auckland peninsula has its maximum rainfall. The drier parts of the South Island, however, often get most rain in summer. These rains, due to convection currents formed during periods of light winds, clear sky, and intense sunshine, are of importance to farmers in Canterbury and Otago.

Based upon an official map prepared by Dr E. Kidson

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200 inches a year, with a mid-winter (July) maximum. But having crossed the range the air is compressed and warmed by descent, so that rainfall rapidly decreases, as in Canada and Patagonia, and the eastern plains receive from 20 to 25 inches only.

Most of the North Island is under the influence of the westerlies only in winter. In summer calms and light breezes prevail, but occasionally south-east winds (trades) are felt, and the eastern side, being mountainous, gets heavy rainstorms. In winter, however, the westerlies distribute moderate rainfall over the open country in the west (30 to 50 inches), but the eastern highlands receive over 70 inches. As in Tasmania, there are no parts of New Zealand subject to drought. The following are typical figures of annual rainfall: Auckland 45, Wellington 41, Christchurch 25, Clyde 15, and Dunedin 37 inches respectively. The number of days with rain are 186, 166, 125, 76, and 161 respectively.

The North Island, being warmer, less windy, and possessing a more uniform rainfall, is ideal for temperate forests. The lowland forests have the character of the true tropical rain-forest: in the Auckland peninsula stately pines, notably the kauri (not the karri eucalyptus), and many other huge trees grow luxuriously, and the abundance of tree-ferns, sometimes 40 feet high, climbers, shrubs, mosses, and even palms makes the forests difficult to penetrate. At the same time there are few flowering plants. The forest thins out to the south as the rainfall decreases. But on the western slopes of the Southern Alps are large forest areas containing evergreen beech and the soft woods red and white pine. These forests are more open than the northern forests. The original forest area has been much reduced since the middle of the last century. But about 12 per cent. of the total area of New Zealand is still forest. East of the mountains patches of forest are found only in the upper valleys. The wind-swept plains have only low, scattered trees and wiry

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grasses, and may be termed prairie or steppe land, except that the winter is not severe.

In marshy parts, in both the North and the South Island, the flax plant (phormium) grows wild, and is also cultivated. Three-fifths of the cultivated phormium is grown in the North Island, particularly in the Auckland peninsula. The fibres of its long, grassy leaves, which grow to the height of a man, are collected and used in commerce for rope- and mat-making. But the milling of flax has declined. The Maoris make clothing from it.

New Zealand, even more isolated than Australia, had some animals characteristic of the earliest geological times, but these, although akin to Australian types, were found to be far fewer in number. The only mammals were seals and two kinds of bat. The Maori dogs and rats once thought to be indigenous were probably introduced by the Maori. The former is now extinct. No eucalyptus or acacia were found; there were also few flowering plants, but many types of fern. The natural flora and fauna was remarkably poor, but, as in Australia, European animals and birds have established themselves.

But if the animal and plant life was poorer than that of Australia, the native inhabitants proved to be immensely superior to their Australian neighbours. The Maoris, who number about 73,000, are of fine physique, and are thought to have come from the Pacific Islands some five or six centuries before the islands were discovered by the Dutchman Tasman in 1642. This brown, stalwart race, with their faces tattooed with intricate designs to mark their tribe and status, were skilled oarsmen and craftsmen in wood, but not in metal, and for some time they fought fiercely against the white intruders. Later they accepted the new conditions, but at first their numbers declined through contracting diseases and bad habits in their changed mode of life. But, being an intelligent race, they responded to the education provided for them, and they are now a flourishing part of the community, found in all

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walks of life, and having their own representatives in the New Zealand Parliament. The white inhabitants, numbering nearly 1,500,000, are of selected British stock, chiefly English, though with large Scottish, Irish, and Welsh leavening. Particular care from the earliest days was made in the selection of emigrants to this Dominion.

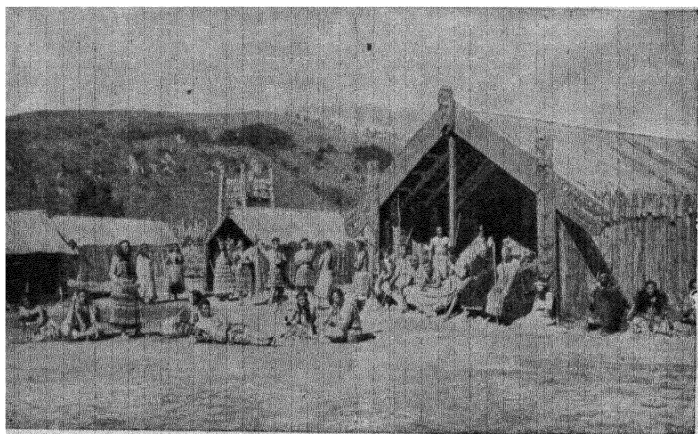


FIG. 100. MAORI VILLAGE

By courtesy of the High Commissioner for New Zealand

The people have proved themselves resourceful and energetic, so that New Zealanders are justifiably proud of their progress and prosperity.

LIVESTOCK

Sheep-rearing, introduced from Australia, was the first and for some time almost the only industry. It still remains the most important, but cattle-grazing, agriculture, and manufacturing are now competing strongly. New Zealand sheep are bred both for the quality of the mutton and for wool, the production of which increased after the War. But after 1930, when the number of sheep

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reached a maximum of 30 millions, there was a steady decline. In 1934, however, the number again showed an increase. New Zealand now has 28,650,000 sheep, and ranks seventh among the principal sheep countries of the world, with Australia heading the list. The North Island has rather more than half the total, the chief areas being

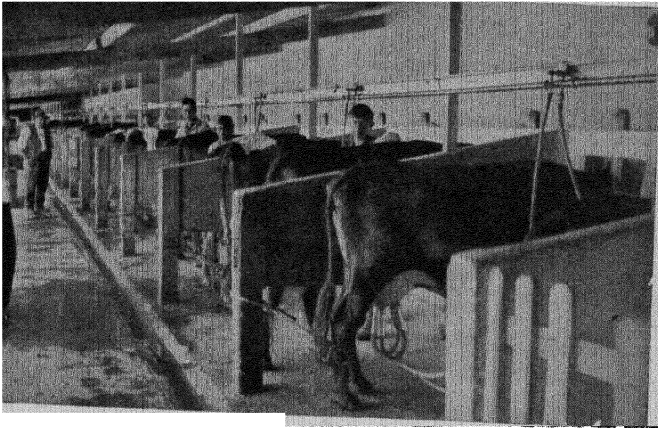


FIG. 140. MILKING BY MACHINERY

Economy of labour is a marked feature of New Zealand's dairying development.

By courtesy of the High Commissioner for New Zealand

the plains along the coast beyond Wellington, round Napier and Gisborne, and the Auckland plains. In the South Island the chief sheep areas are the Canterbury Plains, Otago, and Southland. The export of wool has much increased during the last two years. Transport of mutton was a great problem. The meat, as from Argentina, has to cross the equator to reach the European market, but the distance is doubled. Cold storage, both while awaiting shipment and throughout the voyage, is essential, and vessels are specially constructed to maintain an even temperature. Mutton keeps better than beef

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under these temperatures during such a long voyage, so that cattle are bred chiefly for dairy purposes. Out of a total of 4,300,000 cattle nearly 2,000,000 are dairy cows. The North Island contains five times as many cattle as the South Island, and in both islands the proportion of dairy cows is the same—viz., about 45 per cent. Native grasses have been burnt off and better kinds sown. The dairy pastures are the Auckland plains, the Taranaki and Wellington districts of the North Island, and the Otago and Southland districts of the South Island. Large quantities of butter, cheese, milk (dried and condensed), hides, and meat are exported. The present production of butter is over five times, and cheese nearly three times, that of pre-War figures. The quantity of butter produced during 1933-34 was the highest then recorded, and was an advance of 9 per cent. on the previous year. Four-fifths of the total production is exported. The whole industry is organized on the most scientific lines, and the quality maintained is of the highest.

AGRICULTURE

Agriculture is carried on mainly for home needs. The Canterbury Plains constitute the chief pastoral and agricultural region in New Zealand. They are almost a dead level, and extend for 150 miles, being 40 miles broad at the widest part. The dry climate of the Canterbury Plains is suitable for wheat and oats, and the production of wheat is increasing. Four-fifths of the total wheat crop is grown on the Canterbury Plains. Otago is the next most productive area. The important crops of oats for threshing, barley, and turnips are similarly distributed between these two areas. The maize crop, on the other hand, is almost entirely confined to the North Island, particularly round the Bay of Plenty. There also flax is cultivated, but fruits—grapes, oranges, lemons, and other Mediterranean kinds—are more important.

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Apples, pears, and plums do best in the South Island, and are exported to Britain and South America. Poultry and bee-keeping are also extensively practised. From the forest the timber of the kauri-pine is a valuable product for constructional work, and its gum is used for varnish-making, while soft woods from the South Island are



FIG. 141. MAORI WOMEN GATHERING FLAX, ROTORUA, NORTH ISLAND

By courtesy of the High Commissioner for New Zealand

exported to Australia. In 1930 the imports of timber amounted to twice the exports, but since then exports of timber have steadily increased, and are now more than double the imports. The imports of timber are chiefly Oregon pine, logs and poles, and Australian hardwoods.

MINING AND MANUFACTURING

Coal occurs in many parts of New Zealand, but the output of brown coal far exceeds that of the bituminous

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coals. Coal is found in the North Auckland peninsula, in Waikato valley at Huntly (near Hamilton), and at New Plymouth. But the chief area is the Brenner field, in the north of Westland. The coal exported from Greymouth and Westport is of good quality as steam coal. There is coal also round Dunedin, and near Lyttelton, on the Canterbury Plains. Of the coal locally produced New Zealand consumes about 1,800,000 tons a year, exporting only 34,000 tons. The Dominion Government is spending much money developing hydro-electric power, which now supplies virtually the requirements of the two islands.

The production of gold, as in Australia, was declining, but the value of gold exported has risen considerably and increased the activity in gold-mining. It is worked both in alluvial deposits and in the quartz reefs, the latter being the richer. Reefton, near Westport, the river valleys of Westland between Ross and Greymouth, and the Clutha valley in Otago, in the South Island, and the Coromandel peninsula, east of Hauraki Gulf, in the North Island, are the chief sources of supply. Silver occurs alloyed with gold, but the supply is falling. Other metals are present, but the only ones worked are tungsten and manganese.

Manufactures are steadily growing, both in the number of people employed and in value. There are now over five thousand factories, and the value of manufactured products is more than £66,500,000. The important meat-freezing works and the butter, cheese, and condensed milk factories are by far the most remunerative. Next to these the products of sawmills and carpentry, printing and bookbinding, woollen goods, leather and shoe factories, flour-mills and breweries, engineering- and motor-works, have the highest values in output. As power production is developed the Dominion will become increasingly self-supporting, but there are many things of which both the Mother Country and the Dominion will mutually stand in need.

Auckland is, like Sydney, both the oldest settlement

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and the largest urban area (221,000). It stands on a site of great natural beauty—an isthmus, five miles wide, between harbours on two seas, overlooked by many old volcanic cones. Waitemata, the eastern harbour, is the better, and has one of the largest docks in the world. Manukau, on the west, is shallow and almost landlocked.

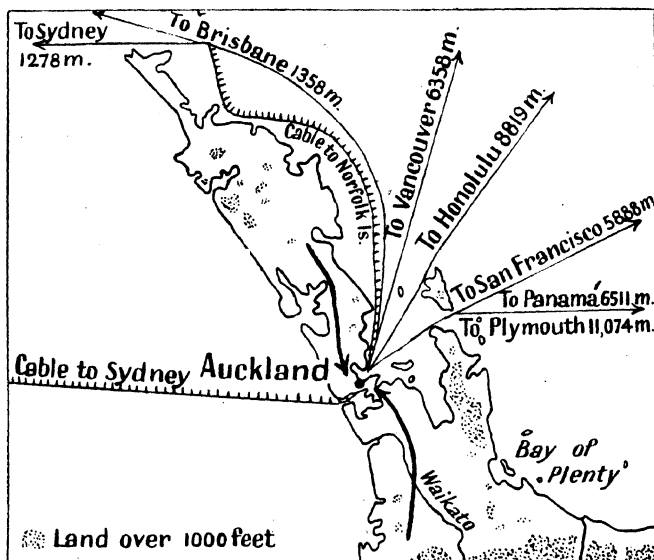


FIG. 142. POSITION OF AUCKLAND

Auckland exports the gold and silver from Waihi and Coromandel, coastwise coal from the Waikato valley, kauri timber and gums from the north, as well as fruit and dairy produce from the whole area. Coal supplies power for local saw-mills, flax-mills, and fruit factories. It is linked by the Main Trunk Railway to Wellington *via* the Waikato valley and the King Country. Since 1932 all cable traffic to and from New Zealand has been handled at Auckland, where the Pacific cable terminates. One

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of the two 'Eastern' cables between Wellington and Sydney has been diverted to Auckland. The other could again be brought into use if required.

Wellington (147,000) is the capital, centre of Government, and chief port. Port Nicholson, with its fine, sheltered harbour, has the advantage of a central position,

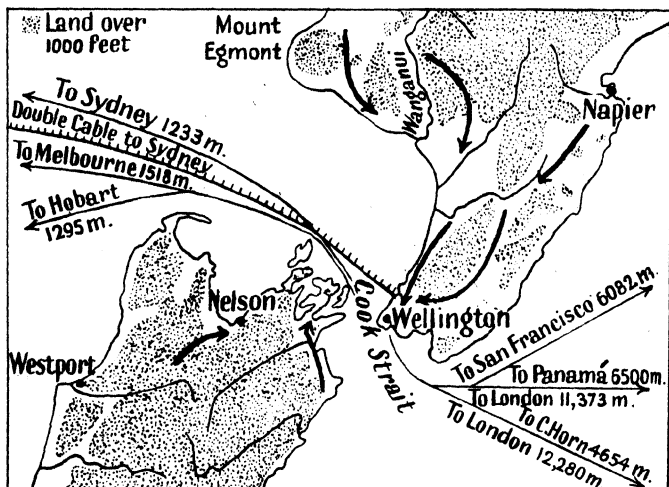


FIG. 143. POSITION OF WELLINGTON

and liners from Britain and Australia bound for Canada and the United States call regularly. The Panamá Canal provides the shorter and quicker route. The city has a flourishing university and other educational institutions, a number of fine buildings, both public and commercial, many of which are built of timber, spacious parks, and a big botanical garden. It acts as a collecting market for the pastoral hinterland, and consequently exports wool, frozen meat, hides, and dairy produce, and has woollen mills and vast cold-storage premises. Railways run northward, to the fertile Wanganui valley, which has the port of

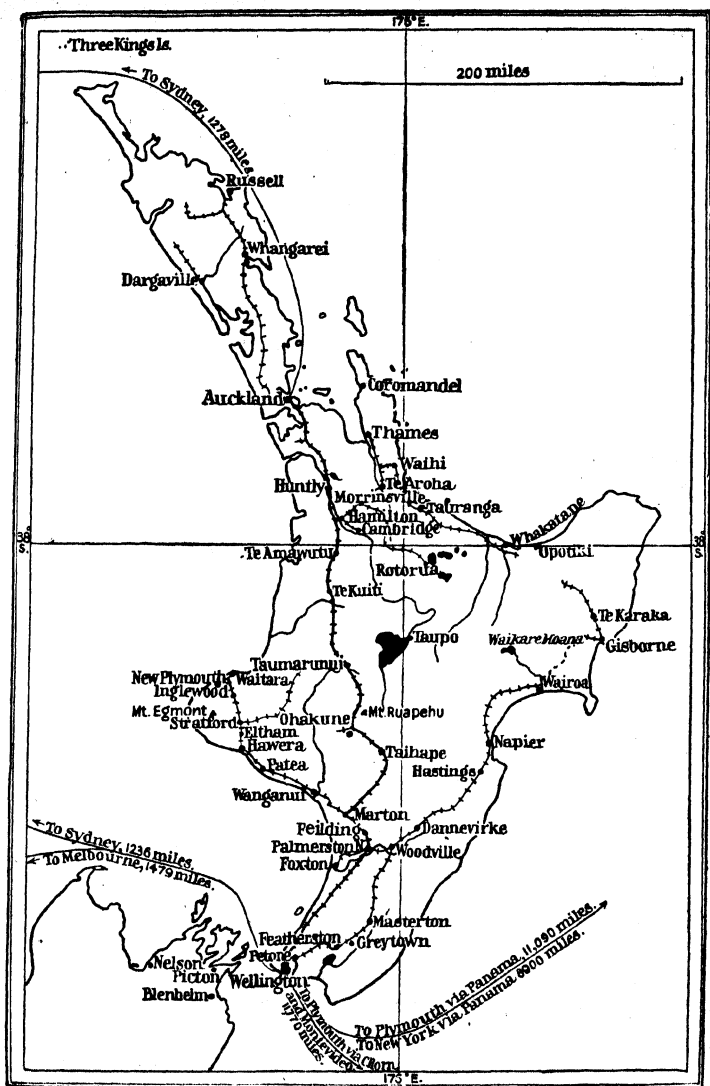


FIG. 144. RAILWAY DEVELOPMENT IN THE NORTH ISLAND, NEW ZEALAND

The total length of railway (of 3 ft. 6 in. gauge) in this island is 1570 miles.

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Wanganui at its mouth, and to the port of New Plymouth; to the north also through dairy and agricultural districts and the towns of Greytown and Masterton to Napier, in the Hawke's Bay district, a town which exports wool, frozen meat, and fruit. Palmerston North is a centre of the flax industry, but is also surrounded with fertile land supporting numerous dairy cattle and sheep. The Napier district suffered the devastating earthquake mentioned above, but rapid reconstruction is in progress.

Christchurch (131,000) is the third largest city. It is the centre and capital of the rich Canterbury province. Railways follow the plain to the north and south, and another threads the mountains by Arthur's Pass (3100 feet), using a long tunnel under the Otira gorge to Grey-mouth. Originally a Church of England settlement, it has now both a Protestant and Roman Catholic cathedral, fine schools, public buildings, and parks. The port of Lyttelton lies eight miles away, with a good harbour on the northern shore of Banks peninsula. Wool, meat, and dairy products are exported overseas, and wheat coastwise.

The name of Dunedin (88,000), in the south, reminds us of the early Scottish settlers. It is similarly situated on a peninsula, with anchorage along the city front at the head of Otago Harbour. As it is rather shallow Port Chalmers, nearer the mouth of the harbour, has wharves for the larger vessels, and its trade is not far short of Lyttelton's in value. Being the outlet for Otago province, with its cattle and sheep, its fruit and wheat crops, and its coal, it has all the typical New Zealand industries and exports. Railways follow the coast, and others strike inland *via* the Clutha and Taieri valleys for the holiday resorts amid the 'cold lakes' of the mountains.

Invercargill (24,000), with its port, Campbelltown, on Bluff Harbour, fifteen miles away, is the outlet for South-land, a district which has the climate and products of West Scotland. Its trade in wool, timber, fish, and dairy produce is considerable. Across the stormy Foveaux

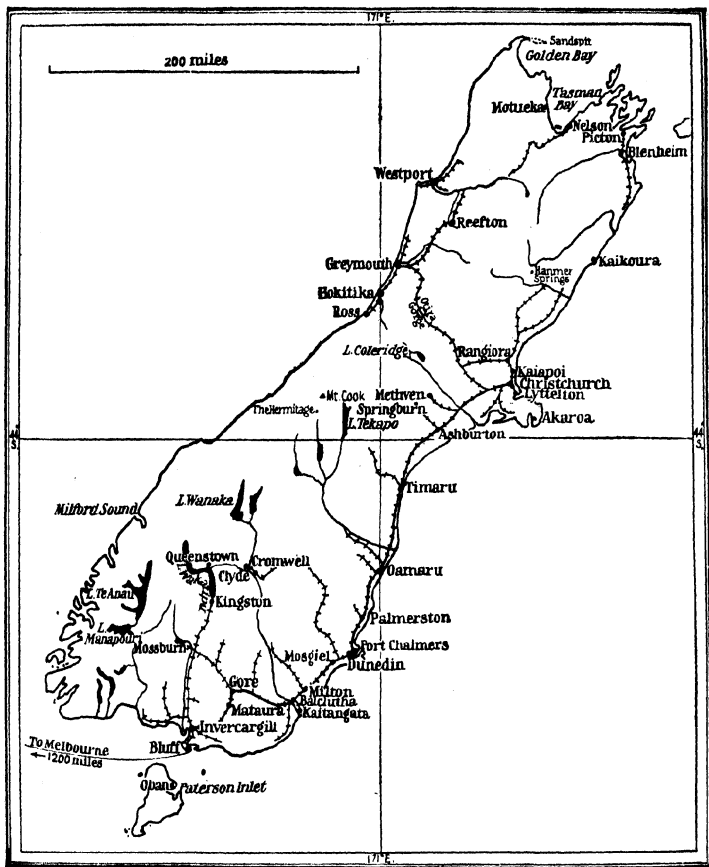


FIG. 145. RAILWAY DEVELOPMENT IN THE SOUTH ISLAND, NEW ZEALAND

The total length of railway (of 3 ft. 6 in. gauge) in this island is 1750 miles.

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Strait lies Stewart Island, about 600 square miles in area, a centre for fishing and oysters.

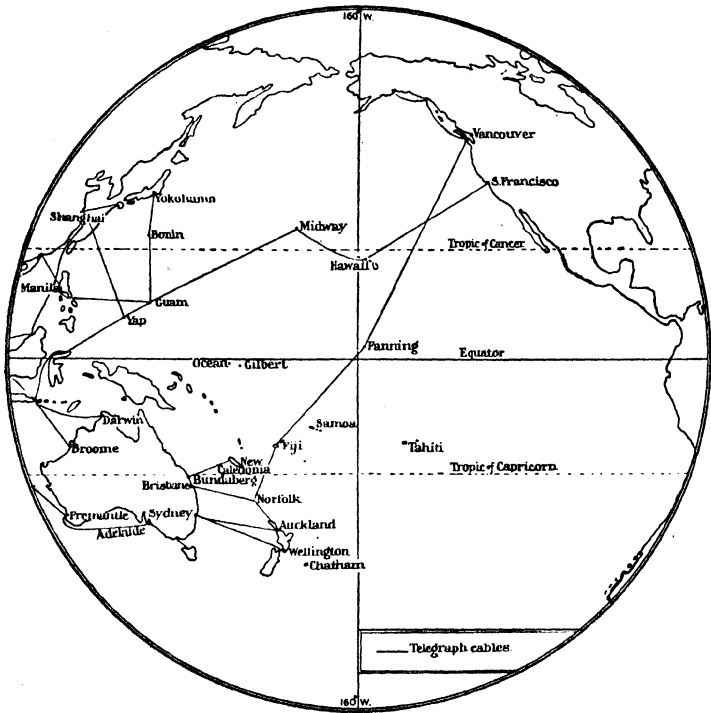


FIG. 146. TELEGRAPH CABLES OF THE PACIFIC OCEAN

Note that the central meridian of this map is 160° W.

The Pacific cable between Australia and New Zealand and Vancouver Island, Canada, was opened in 1902. Note that the route passes through Norfolk Island, Fiji, and Fanning Island. The deep-sea portion between Fanning Island and Vancouver is stated to be the longest in the world. Direct communication between Auckland and Sydney was established in 1912. This was the third cable, the other two being laid in 1876 and 1890.

A number of smaller ports engage in coastal traffic, but Westport and Greymouth deal with the important trade in minerals and timber. Nelson exports fruit and dairy

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produce to Wellington, and Picton has frozen mutton and fishing industries.

In addition to the principal islands, the Dominion of New Zealand controls a number of small outlying and annexed islands of the Southern Pacific, including the Cook and Union Islands, and also, under the mandate of the League of Nations, Western Samoa. The Dominion shares with the Imperial Government and Australia the mandate over the island of Nauru, valuable for its phosphates.

EXERCISES

1. Show the following trade statistics in graphical form, and add brief comments :

NEW ZEALAND TRADE FOR 1933-34

EXPORTS	VALUE (£1000)	IMPORTS	VALUE (£1000)
Butter	11,649	Textiles	4,723
Frozen meat	9,845	Machines, iron, steel, etc	3,683
Wool	7,422	Petroleum products	1,411
Cheese	4,766	Motor-cars and parts	1,171
Other farm produce	2,647	Sugar	509
Sheep and other skins	1,868	Tea	499
Gold	1,281	Fruits	431
TOTAL VALUE OF ALL EXPORTS	41,302	TOTAL VALUE OF ALL IMPORTS	21,451

EXPORTS TO	VALUE (£1000)	IMPORTS FROM	VALUE (£1000)
United Kingdom	35,572	United Kingdom	11,120
Australia	1,393	Australia	2,911
United States	1,189	United States	2,226
India and Ceylon	37	India and Ceylon	886
Japan	354	Japan	535
France	738	France	148
Germany	377	Germany	281

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2. Show how the development of New Zealand has been determined by position, relief, and climate.
3. "New Zealand is the Britain of the South." To what extent is this true?
4. Point out the chief contrasts between the North Island and the South Island.
5. Contrast the Maoris with the Australian aborigines.
6. Draw sketch-maps to show the position and importance of Christchurch and Dunedin.

GENERAL EXERCISES

(The index will be found helpful in attempting these questions.)

1. Contrast the civilizations of China, India, and Japan.
2. Estimate the importance of the river systems of Asia (a) for irrigation, (b) for navigation.
3. On an outline map of the world indicate the regions having a monsoon climate. Describe the chief features of such a climate, and show how they influence the lives of Asiatic peoples.
4. Discuss the influences of the great religions upon the life and characteristics of the peoples of Asia.
5. Give an account of railway, road, and air transport developments in Asia.
6. Draw a map of Asia to show the chief ports and shipping routes. Indicate the chief commodities carried on each route.
7. Write an essay on the cultivation and manufacture of cotton in Asia.
8. Estimate the importance of British possessions in Asia, excluding India, Burma, and Ceylon.
9. Write notes on the following, illustrated, where necessary, by diagrams: taiga, terai, Sundarbans, delta, Adam's Bridge, ghats, loess, oasis, alluvial lowland.
10. Summarize the leading geographical contrasts between China and India, explaining, in particular, the much greater diversity of India.
11. Give an account of Asiatic production and trade in tin, tea, rubber, and silk.
12. Write an essay upon the influences of European civilization in the Far East.
13. Select in Asia one region that is densely peopled and one of scanty population, and explain the contrast.
14. Compare and contrast Eastern Asia with Eastern North America.
15. State the climatic and other conditions necessary for the production of rice, wheat, millets, and soya-beans. Give a brief account of their production in Asia.
16. Briefly describe the life of a typical farmer in (a) India, (b) China, (c) Japan, (d) Uzbekistan.
17. Briefly state the resources of Asia in coal, iron, and petroleum.

ASIA, AUSTRALIA, AND NEW ZEALAND

18. Describe and explain the leading features of human life in lofty highland regions in Asia.

19. Which three photographs in this book do you consider as conveying the most geographical information? State briefly what facts one may learn from the three you have selected.

20. Contrast the East Indies with the West Indies in position and economic development.

21. Explain, with suitable maps or diagrams, the meaning of (a) artesian basins, (b) Great Barrier Reef, (c) geysers and hot springs, (d) Wallace's Line, (e) antipodes.

22. Contrast Ceylon and Tasmania.

23. To what extent does New Zealand resemble Japan in position, physical geography, and possibilities for development?

24. Give an account of the production and trade in (a) wool, (b) dairy-produce, (c) meat, in Australia and New Zealand.

25. Discuss the importance of the North-east Passage to the development of Asiatic trade.

STATISTICAL APPENDIX

I. ASIA

The statistics are based upon those given in "The Statesman's Year-book" for 1935.

The values of imports and exports are for the year 1933, except where otherwise indicated.

COUNTRY	AREA IN SQUARE MILES	POPULATION, WITH YEAR OF CENSUS OR ESTIMATE	EXPORTS IN MILLIONS STERLING	IMPORTS IN MILLIONS STERLING
Aden and Perim	80	48,338 (1931)	2 64	3 99
Afghanistan	250,000	12,000,000 (1933)	—	—
Arabia	1,000,000	10,000,000 (1933)	—	—
Bahrein Islands	250	120,000 (1931)	·51	·69
Bhutan	18,000	300,000 (1931)	—	—
British North Borneo	31,106	270,223 (1931)	75	·44
Brunei	2,500	30,135 (1931)	26	·28
Burma	261,610	14,667,000 (1931)	—	—
Ceylon	25,332	5,312,548 (1931)	13 35	11 82
China	4,278,352 ¹	474,787,386 ¹ (1932)	39·27 ²	86 36 ²
Cyprus	3,584	347,959 (1931)	·89	1·26
Federated Malay States	27,430	1,631,519 (1934)	13·05	7·83
French India	196	286,410 (1931)	—	—
French Indo- China	285,000	21,652,000 (1931)	13·60	12 93
Hong Kong	391	900,796 (1932)	27 27	33·61
India	1,575,187	338,170,632 (1931)	109 74 ¹	86 50 ³
Iran	628,000	10,000,000 (1930)	17 05	6 69
Iraq	116,600	2,857,077 (1932)	2 87	6 02
Italian Ægean Islands	977	134,384 (1933)	·14	·61
Japan	260,644	90,396,043 (1930)	186 10	193·22
Manchukuo ⁴	460,381	34,244,980 (1933)	39 67 ⁵	30·64 ⁵
Nepal	54,000	5,600,000 (1930)	—	—
Netherlands East Indies	733,296	60,729,836 (1930)	47 81	34 16
Palestine	10,000	1,035,821 (1931)	2 59	11 12
Portuguese India	1,637	579,969 (1934)	·35	1 23
Portuguese Macao	5	157,175 (1927)	1 10	2 06
Portuguese Timor	7,300	474,363 (1931)	21	09
Sarawak	50,000	475,000 (1933)	1 67	1·32

¹ Including Manchukuo, all Mongolia, and other dependencies.

² Excluding Manchukuo trade.

³ Including Burmese trade.

⁴ Figures from *Whitaker's Almanack*, 1935.

⁵ Trade for 1930.

ASIA AND AUSTRALIA

I. ASIA—continued

COUNTRY	AREA IN SQUARE MILES	POPULATION, WITH YEAR OF CENSUS OR ESTIMATE	EXPORTS IN MILLIONS STERLING	IMPORTS IN MILLIONS STERLING
Siam. . .	198,188	11,506,207 (1929)	13 87	8.14
Sikkim . .	2,818	109,808 (1931)	—	—
Straits Settle- ments . .	1,531	1,114,015 (1931)	43 56	40.86
Syria and Lebanon	60,000	2,831,622 (1929)	4.57	12 93
Turkey . .	294,416	13,648,270 (1927)	18 12	15 38
Unfederated Malay States .	22,040	1,507,513 (1932)	5.59	4.17
Union of Socialist Soviet Republics ¹ .	8,241,921	165,778,400 (1933)	66 97	47 05

II. AUSTRALIA

The statistics are based upon those given in "The Official Year-book of the Commonwealth of Australia" for 1935.

AREA AND POPULATION

STATES AND TERRITORIES	AREA IN SQUARE MILES	POPULATION AT CENSUS OF JUNE 1933 ²	ESTIMATED POPULATION IN MARCH 1935	POPULATION OF CAPITAL CITIES IN DEC. 1934
N.S.W. . . .	309,432	2,600,847	2,641,354	1,249,040
Victoria . . .	87,884	1,820,261	1,839,363	1,000,000
Queensland . . .	670,500	947,534	962,213	304,930
S. Australia . . .	380,070	580,949	584,858	313,778
W. Australia . . .	975,920	438,852	444,072	213,828
Tasmania . . .	26,215	227,599	229,712	60,500
N. Territory . . .	523,620	4,850	5,061	1,600
Federal Capital Territory . . .	940	8,947	9,407	7,500
TOTALS. . .	2,974,581	6,629,839	6,716,040	3,151,176

¹ Including European territories.

² Exclusive of aborigines. The aboriginal population, including half-castes, in 1933 was 79,568.

STATISTICAL APPENDIX

II. AUSTRALIA—continued

VALUE OF PRODUCTION (IN MILLIONS, AUSTRALIAN CURRENCY)

—	1929-30	1930-31	1931-32	1932-33	1933-34
Agricultural . . .	77·1	70·5	74·5	75·6	70·7
Pastoral . . .	84·6	69·5	61·5	64·9	95·6
Dairy-, poultry-, and bee-farming	49·4	43·1	41·5	39·6	40·3
Forestry and fisheries . . .	11·4	8·3	7·7	8·5	9·4
Mining . . .	17·9	15·4	13·4	15·6	17·6
Manufacturing	149·2	113·0	106·5	114·1	121·8
TOTALS . . .	389·6	319·8	305·1	318·3	355·4

VALUE OF OVERSEAS IMPORTS (IN MILLIONS, BRITISH CURRENCY)

STATES / TERRITORY	1929-30	1931-32	1932-33	1933-34	1934-35
N.S.W. . . .	2·3	18·8	23·8	25·8	32·6
Victoria . . .	20·3	16·0	21·5	22·4	26·4
Queensland . . .	5·6	3·8	4·5	4·6	6·3
South Australia . . .	3·9	2·8	3·8	3·7	4·0
Western Australia	4·1	2·7	3·8	3·6	4·1
Tasmania . . .	·8	·6	·6	6	·7
Northern Territory	·02	·01	·004	·03	·04
TOTALS . . .	61·02	44·71	58·004	60·73	74·14

VALUE OF DIRECT OVERSEAS EXPORTS¹ (IN MILLIONS, AUSTRALIAN CURRENCY)

STATES AND TERRITORIES	1930-31	1931-32	1932-33	1933-34	1934-35
N.S.W. . . .	31·7	34·7	46·6	42·2	37·7
Victoria . . .	26·8	27·8	29·8	30·5	28·1
Queensland . . .	17·1	16·3	15·2	19·6	18·3
South Australia . . .	10·3	12·3	12·8	12·7	11·8
Western Australia	16·6	14·8	14·0	15·6	14·8
Tasmania . . .	2·3	2·6	2·5	2·8	2·0
Northern Territory	·015	·02	·01	·006	·03
TOTALS . . .	104·815	108·52	120·91	123·406	112·73

¹ Goods for export are largely transferred from one state to another for transshipment, and are shown against the state from which finally dispatched.

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III. NEW ZEALAND

The statistics are based upon those given in the "New Zealand Official Year-book" for 1935.

AREA AND POPULATION

PROVINCIAL DISTRICTS	AREA IN SQUARE MILES	POPULATION AT CENSUS OF 1926 ¹	ESTIMATED POPULATION IN APRIL 1934 ¹
Auckland . . .	25,400	469,458	525,928
Hawke's Bay . . .	4,260	70,353	76,950
Taranaki . . .	3,750	71,848	78,200
Wellington . . .	10,870	281,020	318,250
Marlborough . . .	4,220	1 03	19,450
Nelson . . .	10,870	5	54,700
Westland . . .	4,880	1	16,850
Canterbury . . .	13,940	21	232,431
Otago:			
Otago portion . . .	14,050	14	156,400
Southland portion . . .	11,170	65,529	69,750
TOTALS . . .	103,410	1,408,139	1,548,909

VALUE OF PRODUCTION (IN MILLIONS, NEW ZEALAND CURRENCY)

—	1929-30	1930-31	1931-32	1932-33	1933-34
Agricultural . .	9.1	8.8	8.0	8.9	8.7
Pastoral . . .	36.1	24.6	19.3	20.4	32.1
Dairy-, poultry-, and bee-farming	28.4	22.2	21.9	21.2	22.5
Forestry and fisheries . . .	4.2	3.4	2.1	2.1	2.4
Mining . . .	4.1	4.0	3.7	3.5	3.6
Manufacturing . .	39.0	34.6	28.6	27.7	29.5
TOTALS . . .	120.9	97.6	83.6	83.8	98.8

¹ Inclusive of Maoris.

STATISTICAL APPENDIX

III. NEW ZEALAND—*continued*

VALUE OF IMPORTS AND EXPORTS (IN MILLIONS)

YEAR ENDING DECEMBER	IMPORTS		EXPORTS		EXCESS OF EXPORTS	
	N.Z. Currency	Sterling Equiva- lent	N.Z. Currency	Sterling Equiva- lent	N.Z. Currency	Sterling Equiva- lent
1930 . . .	44·3	42·5	44·9	43·2	·6	·7
1931 . . .	26·5	24·2	35·0	31·9	8·5	7·7
1932 . . .	24·6	22·4	35·6	32·4	11·0	10·0
1933 . . .	25·6	20·5	41·0	32·8	15·4	12·3
1934 . . .	31·3	25·1	47·3	38·0	16·0	12·9

For comparison the following figures for Great Britain and Northern Ireland are given:

POLITICAL DIVISION	AREA IN SQUARE MILES	POPULATION (1931)	EXPORTS IN MILLIONS STERLING ¹	IMPORTS IN MILLIONS STERLING ¹
England . . .	50,874	37,794,003	416·50	675·85
Wales . . .	7,466	2,158,374		
Scotland . . .	30,405	4,842,554		
Northern Ireland	5,221	1,246,000		

¹ 1933.

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